









Edward Healy Thompson

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ART. I.—*The Theory of the Picturesque.*  
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[NOTE.—This sketch of an interesting theory was put into our hands by the accomplished author, on his leaving England last summer for the visit of a few months to the Continent, from which he never returned. It is here published, not only on the ground of its intrinsic merit, in spite of its not having received his last corrections, but also as a memorial of one very dear to his friends, who has been prematurely taken away.—Ed.]

THE question is worth asking, and, to the best of our knowledge, has never has been so sufficiently answered as to make any apology necessary for here pursuing and reconsidering it,—What is the correct theory, the true philosophical account, and scientific analysis of that special variety or modification of the Beautiful, which is brought home to the perception of every one under the name of the “ Picturesque ”? What is the secret of the fascination residing in that singular combination of apparently heterogeneous materials, of nature with art, of variety with unity, of irregularity with proportion, of imperfection with completeness, of disturbance with repose, which perhaps every one will acknowledge to be comprehended in the idea which the term conveys, and which, notwithstanding, when we come to examine it, seems so difficult to interpret? The inquiry is interesting in itself as a problem, and has the further recommendation of having a practical bearing upon other investigations which have been conducted from time to time, and which

directly or remotely involve in themselves the decision of this primary one. Thus there is the old question: Is the notion of the Picturesque ancient, or only modern? In other words: Is the term the representative of a principle which must always have been acknowledged, as being based on some ultimate and immutable fact of the human mind; or, like the words, which, to use the saying of a philosophical writer,<sup>1</sup> "have their star", is it but the name and symbol of an idea, which runs its course, which has had its ascertainable origin, its gradual evolution, its historical rise and culmination in the intellectual sky? There is the question, again, of the bearing of the Picturesque on the theory of the fine arts: Does it touch upon poetry? Does it concern architecture? Or, again, is it "classic", or "romantic", or both? And does it tend to maintain or to destroy, when duly examined, the specious but deceptive (as we believe) and indefinite theory thence named? We might go on, it is possible, to suggest other intellectual problems similar to these, with each of which it might conceivably have points of connection; but we have said enough, as it is, to show the suggestiveness of our subject.

We begin then by taking for granted, what in fact we have already implied in our first words, that the Picturesque is comprehended under the beautiful, and is one form of it. What then is the Beautiful? Here there is no answer forthcoming which can be called authoritative. The professed treatises on the subject can hardly be said, any of them, to be held in high estimation; and as in general they are neither deep nor accurate, it would be a waste of time to discuss what we cannot acquiesce in. Hence we are thrown in some measure, for the determination of this preliminary point, on our own resources; and in the execution of this task, so far as is necessary for the inquiry before us, we hope not to be shallow whilst we attempt to be comprehensive.

We reject then, we say, once for all, and without the ceremony of a minute examination, all such theories as that of Alison, who would make the Beautiful simply consist in association; all such theories as that of Burke, who would be content to identify the beautiful with the merely agreeable (the *καλόν* with the *ἡδύ*), who would call sweetness, for example, beautiful to the taste, in the same sense in which a flower, a picture, or the window of a Gothic cathedral, is beautiful to the sight; all such theories as that of Dugald Stewart, which goes far towards identifying the

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<sup>1</sup> Guizot, "Civilisation in Europe", ch. i.



beautiful with the useful or the appropriate, and would explain it on the theory of an adaptation of means to ends; all such theories as that of Sir Joshua Reynolds, who held the beautiful to consist in a mean between two extremes; so that the Greek nose, for example, would be beautiful, as being the due medium between that of the Roman and the Negro; who, in short, interpreted the beautiful simply on a theory of habit, even to the extent of believing that if that which we now are accustomed to call ugliness had predominated in the world, we should feel in it the same pleasure which we now do in the beautiful;—nor, finally, can we accept as sufficient even the theory which has the singular recommendation of being at once the earliest and the latest propounded on this subject, that of the Greek school of philosophy—of St. Augustine, of Coleridge, and of the Père André,—we mean the doctrine that beauty is unity, or, to express it as is occasionally done, is “plurality in unity”, or the combination of the many into one, so as to form a whole. Our objection to this definition is the vagueness of the word unity, which may signify anything or nothing, as we choose to take it. As an instance of what we mean, we may borrow the illustration proposed, if we remember right, by Plotinus, that of the triangle. The triangle, he says, is the first-born of beauty, as being the most elementary combination possible of the “many” to form “one”. Now it is obvious to ask, if the connection of three lines into a definite figure is a creation of the beautiful, as being the union into a whole of three parts, what are we to say to the figure resulting from the union of three lines of unequal length? The scalene triangle, which is the figure in question, is certainly not beautiful, though it realises the definition, or seems to do so; and consequently the definition itself is either obscure or not true.

Setting aside, then, these several accounts of the Beautiful, as inexact or inadequate, and looking round for a more complete definition, if such is to be obtained, let us observe for a moment how much is *popularly* comprehended in the idea of the beautiful. If it be difficult of definition, this might seem certainly to be owing, on taking our first view of it, to the number and variety of the manifestations in which it is presented. Thus it is exhibited not in space only, but in time, not in rest only, but in motion;—in space and in rest, as in the forms of the visible creation, both animate and inanimate; in time and in motion, as in all that is called “graceful”. It is realised again, not only in the phenomena of sight, and here in the two several manifestations of form and colour, but in the phenomena of sound also, and here in the two manifestations of melody and harmony.

Again, not in the world of sense only, but in the world which is supersensuous. It is common to speak of moral and intellectual beauty, as well as physical. There is the beauty of prose and of poetry; there is the beauty of virtue; there is the beauty of the Divine Attributes. In short, hardly anything is there, in heaven or in earth, in mind or in matter, which cannot become, under certain conditions, what, in the ordinary language of men, is called beautiful; and how, it may be asked, are we to chain into a definition a spirit ever restlessly investing itself in forms so different?

We reply, that a careful consideration of these and the like instances of the beautiful, usually and popularly so called, will authorise us to distinguish between the "Beautiful", in the strict sense of the term, and the "Poetical"; and, proceeding on this distinction, we shall venture to include all that is properly called beautiful under the definition of *harmony*, and to refer the beautiful, improperly so called, or what we now name the poetical, to the head of *association*. We are not saying, it will be observed, that the Beautiful and Poetical never meet and intermingle in the same subject; nothing, on the contrary, is more common: but we say that the two are always distinguishable in idea, and may be separate in fact. Harmony, then, is the philosophy of the Beautiful, and association its poetry. Such is our fundamental position, and the necessary explanation of each shall now follow.

1. In saying that Beauty, in the proper sense of the word, is harmony, we assert, what will certainly be admitted, that the beautiful is made up of parts, and that the essence of the beautiful lies in the *mode* of the combination of those parts. So much, indeed, is implied, and truly, in the definition of the beautiful by the old Greek philosophers, before given,—"*Multeity in unity*". Were it otherwise,—were it possible, that is, for a single and individual object, as such and in strictness of speech, to be called beautiful, there would be no distinction assignable between the beautiful and the merely agreeable,—by the latter term being meant the direct gratification of any one of the five senses; and the attempt to establish any principle or law of the Beautiful would then be as nugatory as to theorise upon the satisfaction resulting from the fragrance of the rose or the colour of crimson.<sup>2</sup> Will it be objected that colour, simple and elementary as it is, is yet beautiful? we reply that, on the contrary, we have in colour, when carefully considered, a proof of our assertion, that beauty is

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<sup>2</sup> This is well insisted on and brought out in the *Essays on the Beautiful*, by Coleridge, preserved in Cottle's "*Recollections*" of that writer.

harmony; for, though it is common indeed to hear the particular colour crimson, or blue, or purple, and so on, called beautiful, yet that this is an incorrect use of the term, and nothing more, must be inferred from the circumstance, that so soon as any one colour is set in juxtaposition with another, as in a picture or church window, it immediately becomes beautiful or not beautiful, according as it *harmonises* or not with the accompanying colour.

So is it in colours; so is it, as we shall presently see, in the case of forms; but, omitting these for the moment, let us next test the definition in the instance of what is called grace. "In beauty", says Lord Bacon, in his essay on that subject, "favour" (or "form", as we should now say) "is more than colour, and decent and gracious motion is more than favour. This is the best part of beauty, which a picture cannot express, nor the first sight of the life". Grace, then, being beauty in motion, and time being the "measure of motion", and time and space being, as to their metaphysical character, analogous, we shall be justified in using the word "harmony" in its original and more extended signification (that of *ἀρμονία*), in expressing by it, that is, not the mutual relations of objects in space only, or what in music is harmony properly so called, but the relations of sequence or succession in time also, or what in music is called at the present day melody; and we think it reasonable to assert that, in this wider employment of it, the term harmony can be applied to the beautiful, not only as we perceive it in space and in a state of repose, but also as it comes before us under the conditions of time and motion, when we distinguish it as the graceful. Thus the curved or undulating line, to which the name of the "line of beauty and grace" has especially been given, is one which we *follow* with the eye from end to end. We might define it,—and the same definition would suit the sequence of a musical air,—as "unity in progression". And thus a flower and a tree, of which the outlines mainly consist of flowing or curved lines, as the harebell or the willow, are confessedly graceful. Thus the dance also is graceful; and the verse in Wordsworth, "She seemed as happy as a wave, that dances on the sea", suggests the closeness of its analogy to the flowing or undulating line. So, when Virgil describes birds singing, and Lucretius the motion ("decent and gracious") of the clouds in Heaven, they use language so similar that the one might almost have been suspected of having copied the other. "*Æthera mulcebant cantu*" is the expression in Virgil applied to the birds' music. "*Æëra mulcentes motu*" is the singularly beautiful and poetical expression applied in Lucretius to the clouds' movement. He is speaking of the drifting of clouds over the face of a clear sky; and he sets before us in this admirable half



line a sort of photograph of their gradual and graceful variations of outline as they move onwards:—

“Nec speciem mutare suam liquentia cessant,  
Et quousquemodi formarum vertere in ora”.<sup>3</sup>

We might multiply instances in point, were it necessary to do so; but we may suppose the position we are maintaining to be now granted—namely, that grace, as being of the nature of a musical movement, may be included, like beauty in repose, under the head of harmony. We will, therefore, now proceed, in the last place, to give an illustration of what we mean, when we say that invisible and supersensuous beauty is also harmony, and may thus be comprehended under the same definition with all other beauty. And it is ascending at once to the highest exemplification of which the subject is capable, when we refer to the Omnipotent Author Himself of all beauty. He who is the Almighty, the All-wise, and the All-holy, is also, in the language of divines, the All-beautiful. And theology completes the crown of His attributes with this last, as intending to express by it the confluence in Him, and harmonious connection among themselves, of all the others. “Order and harmony”, says Dr. Newman,<sup>4</sup> in a most apposite passage, “are of His very essence. To be many and distinct in His attributes, yet, after all, to be but one,—to be sanctity, justice, truth, love, power, wisdom, to be at once each of these as fully as if He were nothing but it, and if the rest were not,—this implies in the Divine Nature an infinitely sovereign and utterly incomprehensible order, which is an attribute as wonderful as any, and the result of all the others”. . . . “Such”, he afterwards goes on to say, “is the unity and consequent harmony and *beauty* of the Divine Nature”. The theological doctrine is, in fact, the interpretation of the dim dream of heathen philosophy on the same subject. The past, the present, and the future of the world’s history, chanted by the fates, and blending in sublime harmony with the music of the spheres,—such is the Platonic adumbration in the splendid fable<sup>5</sup> of the fulness of the beatific vision of the All-beautiful.

2. The above, then, are specimen instances out of many which might be given in proof that Beauty in all its manifestations is of the nature of harmony. We have now to say something on the second of the two heads before mentioned, namely, the principle of association, which we have called the poetry of the Beautiful, as distinct from its philosophy. How intimately, indeed, this

<sup>3</sup> Lucretius, IV., 136.

<sup>4</sup> Occasional Sermons, p. 251.

<sup>5</sup> Republic, *sub. fin.*

principle is connected in fact, though it is not to be identified in theory, with the effect which a beautiful object produces upon the mind, is sufficiently evident from such treatises as the once popular one of Alison, already alluded to, whose resolution of the Beautiful is simply and merely that it is the awakening in the mind of a train of agreeable associations, and who would never have been elevated into an oracle on a basis so insufficient, were it not that every one must feel that he is right in the observations he makes, so far as this, that they are true but apparently immaterial, his mistake being, that he substitutes an attribute, a phenomenon, a separable accident of the Beautiful, for its real essence. The same is the case with a popular writer of this day—Mr. Ruskin. At bottom he is wholly an associationist as regards his theory of the Beautiful no less than Alison, and in page after page of his many volumes unfolds the poetry of his subject with an exuberant eloquence, while in his attempts at a philosophical analysis of it, he is meagre and inadequate, or rather he is perpetually offering us poetry, which he calls philosophy. Thus we sympathise, for example, with the poetical feeling which makes him associate the form of the arch in pointed Gothic with the shape of the leaves in one-half of the vegetable kingdom, while at the same time we reject the philosophy which would assert the fact of this correspondence to be a satisfactory reply to the question, Why is the pointed arch beautiful in a Gothic cathedral? We maintain, on the contrary, in direct opposition to these writers, that association, so far from being identical with the Beautiful, or a part of its essence, stand in the sort of relation to it that expression, as it is called, in the human face does to regular features. Their beauty consists in their regularity; it is a matter of symmetry, proportion, and harmony; it is something objective and external; it is reducible to rule; it is independent of the caprice or particular impression of our own mind. But, on the other hand, we connect the “play” of a countenance with the character, the thoughts, the emotions, the alternations and variations of feeling in the inner man. Momentary and ever-changing, it is like the sparkling of light on the surface of a sea of which the depths have been agitated. Here, then, is a process of association correctly so called; here is something unsystematic, indefinite, irreducible to rule or measure, incapable of analysis, in a word, here is poetry. And, as it is certainly common on the one hand to hear of features being described as beautiful because regular, yet as unpleasing, nevertheless, because vacant; and, on the other, as pleasing, because full of expression, though not beautiful; and as the perfection of excellence is admitted to be where both qualifications unite in one person,—

we have here a perfect illustration both of the manner in which harmony, viewed as the philosophy of the Beautiful, is complete without association, and of the poetical grace independent of, and beyond itself, which it may borrow from association.

Thus music, to take another instance, independently of those fixed laws of material harmony or melody by which it is beautiful, awakens also in the mind, there is no doubt, certain dreamy and subtle chords of imaginative association and feeling, which make it eminently poetical. Light, on the other hand, according to the same view, would be beautiful, not strictly and philosophically—for, of course, there cannot be harmonious relations where there are no parts,—but still poetically in the highest degree, for what have we in light but a pure, immaterial, immutable, life-like, inconceivably swift, all-encompassing, dazzling emanation from a world above—"æthereum sensum, atque aurai simplicis ignem",—which is fraught with associations of all that is divinest and most perfect?

And, lastly, to test the definition in the instance of literary description or word-painting:—That the Beautiful here also may have the poetical superadded, and may be elevated even to the grandest sublimity by the power of association, can hardly be evidenced more completely than in the following description,<sup>6</sup> the divine original of which, in St. John's prophecy, will be remembered by every one:—

"And who is he, yon vast and awful form,  
Girt with the whirlwind, sandal'd with the storm;  
A western cloud around his limbs is spread;  
His crown a rainbow, and a sun his head:  
To highest heaven he lifts his kingly hand,  
And treads at once the ocean and the land;  
And hark his voice amid the thunder's roar,  
His dreadful voice, that time shall be no more".

Here is certainly a picture so complete, so definite, so radiant, so harmonious in form and colour, so simply beautiful, that were it realised on canvas it would command admiration as a masterpiece of angelic grace and celestial dignity. But the point to be insisted on is, that in addition to the form and the colour which made it beautiful as a picture, there is a combination of sublime symbols which make it wonderfully poetical. The cloud, the rainbow, and the thunder, stand for the attributes of mercy and judgment characteristic of the Omnipotent King whom the angel personifies; and since half the effect of the representation depends

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<sup>6</sup> Heber's Palestine; Comp. Apoc. x.



on these symbols, that effect is so far to be ascribed, not, we say, to the picture, but to the high associations indirectly awakened by the picture.

So much in preparation for the inquiry which is our immediate concern, into the nature of the Picturesque.

We have been occupied thus far in distinguishing between the two principles of harmony and association in their relation to the Beautiful; and we have determined the essence of the Beautiful to consist in harmony, and association to be connected with it only as an addition *ab extra*, and as rendering it poetical. This distinction, then, we shall now employ, to disembarass our inquiry of the ambiguity which would otherwise beset it, owing to the fact of the Picturesque being accidentally encompassed with so much that is romantic and imaginative. For, as it so happens that it is the not unfrequent concomitant of decay or ruin, the temptation has been great among theorists on this subject, to make associations of decay and ruin, an element in its definition; in other words, make the principle of it consist in the eccentric, the abnormal, and the distorted; and thus by a curious inversion, to discover in it, a deflection from the true type of the beautiful rather than a fulfilment of it. Here we are reminded once more of Mr. Ruskin's mode of philosophising on these matters. He also finds the key to the Picturesque, as may be supposed, in a theory of association; though in fact he advances it in a form somewhat different from that just alluded to. He defines it to be "parasitical sublimity", and, in explanation of his meaning, gives the instance of a Swiss chalet, with the large and irregularly shaped stones, set, as usual, upon its roof, to secure it from the violence of the weather. These stones, he says, are the source of its picturesqueness, and are such, not in themselves, and as they stand on the cottage roof, but by virtue of an intellectual process in the mind of the beholder, who first associates them in thought with the adjoining mountain from which they are taken, and then mentally invests them with the sublimity attaching to that mountain. It is enough, however, to have noticed this theory, and those akin to it, in a passing sentence; and we are exempted by all that has already been said, from further dwelling on it. Association and romance may add poetical interest, no doubt, to the picturesque object; but if they may reasonably be excluded from any part in the theory of the Beautiful, so also may they safely be rejected from that of picturesque beauty.

The Picturesque, then, as its very name indicates, must be referred for its ultimate explanation to the art of the painter. It

must be realised, that is in one or both of the two elements of form and colour. So much, if the principle of association be set aside, as just said, may be taken for granted. Moreover, it being impossible to have colour in a pictorial composition apart from form, whilst of course it is possible to have form without colour, as in an engraving, a photograph, or at any rate in a mere outline, we shall be simplifying our subject as well as adhering to the essential and disregarding the non-essential, in setting aside the consideration of colour, and confining our attention entirely to that of form. If the picturesque, then, be reducible to the general head of the beautiful in form, and if the beautiful in form be reducible, like the beautiful in colour and the beauty of motion, to the head of harmony, we can hardly go astray in pronouncing the essence of the picturesque to be dependent, directly or indirectly, on what is called symmetry; inasmuch as harmony in the arrangement of lines *is* symmetry.

What, then, is the symmetry which distinguishes picturesque beauty from beauty in general? Here it will be convenient to recur to the illustration of the beautiful already alluded to, as having been proposed by the ancient philosophers,—the triangle. There are three forms of the triangle: the scalene, of which the sides are none of them equal to each other; the isosceles, of which two are equal and one is unequal; the equilateral, of which all three are equal. The scalene, then, is wholly unsymmetrical; the isosceles, imperfectly symmetrical; and the equilateral, perfectly. The scalene also is certainly not beautiful; whereas the isosceles and the equilateral both satisfy the eye, and by reason of their regularity, and, though dissimilar to each other, can neither of them submit to be set aside as not beautiful. There is a difference, however, between the two, and that an important one.

The equilateral triangle, in consequence of the very perfection of the symmetrical harmony of its component parts, has the character of formality. So it is with flowers; they are beautiful, abstractedly from their colours, with a geometrical beauty; their effect, generally speaking, being produced by the systematic disposition of their petals, which are the repetition of each other, round a common centre. So it is, in like manner, with the calidoscope; that instrument, by the mere power of a symmetrical multiplication, converting a chaos of disorder into magical beauty; still into beauty of a limited range only, as being, by the necessity of the case, always formal. The isosceles triangle, on the other hand, is saved from being formal at the expense of being less completely symmetrical; and its third side, which is irregular or unsymmetrical, as compared with the other two, is of

the nature of a discord in music, as employed by a great master. It tempers a harmony which would otherwise be too perfect to be quite symmetrical.

Here, then, we get a glimpse of the true reply to the question above put, viz., What is the symmetry which distinguishes picturesque beauty from ordinary beauty? for the most cursory consideration of all that is generally included under the name picturesque, will lead us to see that its chief characteristic is a certain irregularity; formal it assuredly is not, whatever else it is. We will accordingly distribute all beauty into formal, on the one hand, and picturesque, on the other. And, speaking broadly and generally, we have the types of these two divisions of the beautiful in the two triangles just mentioned: viz., of the formal in the equilateral, and of the informal, or picturesque, in the isosceles.

For the more complete illustration of the distinction here drawn, let us now place ourselves in imagination in the presence of any particular masterpiece we please of classical architecture, only supposing it to be as perfect as on the day when it was originally set up by Pericles at Athens, or by Augustus at Rome. It may be the front of the Parthenon, or the portico of the Pantheon, or the *Maison Carrée* of Nismes, or that successful imitation of the antique, the Madeleine at Paris. Anyhow we shall have before us a range of columns, Doric, Ionic, or Corinthian, as the case may be; perfect in their parts, their heights, their proportions, their inter-columniations; above these the horizontal entablature, adorned with its appropriate decorations according to the style of the architecture; and above this again, and crowning the whole, the pediment, with its obtuse-angled triangle, forming at once the termination of the roof of the temple and the frame of a series of exquisite representations in sculpture arranged within it. Now, such a creation as this is emphatically and by universal consent beautiful;—as beautiful in its particular department as anything that can be named; yet assuredly it is no subject for the painter. He might do his best indeed, were he compelled to design it, in the way of adapting it to a picture, whether by taking it at an angle, or by setting it on the summit of some rugged and commanding rock, as the Parthenon on the Acropolis; or by relieving it with the undulating lines of trees and clouds; or by breaking up its uniformity, in casting upon it broad lights and irregular shadows; but were he to draw the front of the building as we have described it, and apart from such accessories or details as we have just been imagining, he would produce, not a picture, but an architectural elevation. The result, in fact, though perfectly beautiful in its own way,



would be irremediably formal; and where is the spell that shall evoke a manifestation of the picturesque from materials so unpromising?

In the "Bridal of Triermain", we read of a knight, who, weary of continually watching before a pile of rocks, which remained nothing but rocks, though a magical castle was said to be concealed within them, at length flung his battle-axe at the cliffs which rose above him, and splintered off a fragment of the mass in so doing, when the charm being thus broken, the enchanted fortress immediately burst upon his view in all its reality. Now we may try a somewhat similar experiment in the present instance with equal success. For the castle-rocks of St. John, which the knight struck, let us substitute the façade of the classic temple just imagined, and let the blow of the battle-axe be represented by some partial disturbance of the severe regularity of the outlines which bound the structure; let the pediment be somewhat broken away; let one or two of the pillars be displaced or broken off short at different elevations; let the continuity of their fluting be disturbed, let them be eaten into by the weather, and overhung and tufted in places with creepers or wild flowers; let the monotony of their marble be diversified with moss and lichen; and let the ground at their foot be broken and heaped up in hillocks: and behold a nobler creation of the beautiful than we had before; *dum moritur resurgit*; from the prison of the formal has come out the beauty of the informal, for in the *ruin* we have the subject of the pencil, the delight of the artist, the material for the sketch-book, in short, the very embodiment of the picturesque in all its perfection.

We repeat that we have here given what every one must admit to be a specimen of the picturesque, true, adequate, and complete, *omnibus numeris*, and the principle of the picturesque may now be easily deduced from the consideration of it. It is, in fact, a *disturbed symmetry*; and where it is realised most completely, will be found to be a pretty accurate equilibrium of the symmetrical and the unsymmetrical, neither absolutely preponderating to the disadvantage of the other. Hence, while the modes in which it admits of being exhibited are very various, the essence of every such exhibition will be always this, all that is possible in regularity short of formal arrangement, and all that is possible in freedom short of no arrangement at all or mere disorder. There must be an interpenetration, so to express it, of the formal by the informal; there must be at once correspondence and diversity, harmony and contrast. This, and this only, is the picturesque; and of this the isosceles triangle, as before said, is the simplest manifestation.

Should any one yet hesitate to acquiesce in this definition, under the feeling that after all it may be still association which is the charm of the ruin, and not the form of it, let him return again to the supposed temple, and consider what would be the effect of an entire abolition of those proportions which he is so little disposed to identify with its picturesqueness. That in its formal or complete state, the piece of architecture in question is unpicturesque, has been made evident already; now, on the other hand, that an utter absence of form, or simple disorder and confusion, is unpicturesque also, may be proved to demonstration, by pursuing to its limits that same process of demolition by means of which we rendered the temple picturesque in the first instance. Carry on, in fact, the supposed disintegration of the building little by little, and you will find, that at a certain stage of the proceeding you reach a critical turning point, beyond which every step in advance ceases to be a creation of the picturesque, and becomes the corruption of it; till at length, when column, pediment, and entablature lie in shapeless confusion on the ground, corruption has become absolute dissolution, and the picturesque has vanished. It has come, it has been seen in its perfection, it has passed away and has been destroyed by the identical process by which it has been erected; as if the conditions of its existence were those of the White Lady in the romance, who then first became visible when the fortunes of the "house", with whose destiny her own was interwoven, had fallen into decline; whose zone gradually dwindled as the ruin proceeded, and who was fated to perish altogether at the moment of its consummation.

The picturesque, then, is, in its essence, a due combination of the formal and the informal, and it is important to observe that this is the definition, the most natural and antecedently probable in a philosophical point of view, of any which could be given; for the discernment of likeness and unlikeness, which are only other names for that system of symmetry and interruption, of correspondence and contrast, which we recognize in the picturesque, is an elementary power and necessity in the human mind: hence it is a principle of universal application; *latissimè patet*. "The perception", it has been said,<sup>7</sup> "of similitude in dissimilitude is the great spring of the activity of our minds, and their chief feeder. . . . It is the life of our ordinary conversation; and upon the accuracy with which similitude in dissimilitude, and dissimilitude in similitude are perceived, depend our taste and our moral feelings". Thus it is the secret, for example,

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<sup>7</sup> Wordsworth—Preface to Poems; and compare Coleridge's Remains.

as others have pointed out, of the reason why we prefer the marble statue to the more perfect imitation of the human form which may be made in wax-work. Thus in poetry, again, it is the ultimate principle of the entire scheme of metre, versification, and rhyme, and of the system of parallelisms, which constitutes the versification of the Hebrews; of metre, for it is here the similitude and dissimilitude of time or measure; of rhyme, for it is here the similitude and dissimilitude of recurring sound; of parallelism, for it is here the similitude and dissimilitude of mental conceptions. It is the main principle, in short, of the charm residing in all imitation of whatever kind.

This law, then, of our condition, that we should be incessantly comparing and contrasting, contrasting and comparing, and finding pleasure in the recognition of the like in the midst of the unlike, being identical, in fact, with the law which constitutes the picturesque, we may naturally expect a principle so universal to admit, even in the particular province of the picturesque, of extensive application; and, in truth, it is hardly too much to say that, according to the variety of the employment of it, is the success, the beauty, and the perfection, so far as form is concerned, of a pictorial composition. Thus, an object may be picturesque, for example, in itself, according to the definition of the picturesque above given; or, on the other hand, it may be picturesque only or mainly when in juxtaposition with a second object, partly resembling the first, and partly differing; it being just this union of resemblance and difference which constitutes the picturesque. Or, again, each of the two objects may be properly picturesque in itself, or taken separately; and the two may also create the picturesque when taken conjointly. An oak, for example, if well grown, is a picturesque tree. Its stem is just a sufficient departure from a straight line to save it from being formal, and its foliage groups into masses corresponding one to another in character, yet not rigorously uniform,—repeating one another with variations, and perpetually suggesting a symmetry which they stop short of completing. If a tree, then, such as this, be introduced into a picture alongside of a piece of architectural ruin of the kind before mentioned, the one, to use the common expression, will set off the other, in a manner and to a degree in which neither one tree would set off another tree, nor one ruin another ruin; or, in other words, owing to the character of their outlines, there will be at once a certain difference in the opposed masses, and a certain correspondence, and the picturesque will be the result.

It would be easy to continue these illustrations almost indefinitely. What, for example, is the secret of that picturesqueness



of the Swiss chalet, which Mr. Ruskin mistakenly attributes to "parasitical sublimity"? It is simply, that the rough masses of irregular stone with which the roof is studded, interrupt what would otherwise be the over-formality and regularity of the lines of the building. Why is it, again, that the painter, who has a picturesque object to copy, avoids giving it a place in the exact centre of his paper? It is the fear lest, by consequently dividing his paper into equal parts, he should give an air of formality to his drawing, which would destroy its picturesqueness. Or, again, what makes him prefer taking his building, be it castle or cottage, at an angle, in preference to a front view of it? It is obviously the feeling that the slanting lines thus produced by the necessity of the perspective, tend to mitigate that decided formality which would be the consequence of a front view. Or, again, why is he so fond of balancing the two sides of his picture? Why will he put a small tree on the left hand over against a large one on the right, a large rock on the right to balance a small one on the left, unless always with the intention of producing a certain correspondence without formality? In the case of a historical picture, as distinct from landscape, the introduction of the same principle of arrangement is more remarkable still, for there, if any where, the dignity or the interest attaching to the exhibition of human action or passion, to expression in countenance and feature, and to animation in form, might seem enough in itself for the highest purposes of the artist, without the addition of the particular element we are here treating of. Yet it presents itself, in fact, in what are called the "forms of composition" employed by the great masters. In other words, some regular figure, whether the triangle, the circle, the oval, the figure of eight, the St. Andrew's cross, or any other, is made the basis of the composition or grouping of the different personages which are the subject of the picture; not, however, in such a manner that the employment of the figure in question becomes prominently conspicuous; but here is again that peculiar intermingling of the formal and the informal which constitutes the picturesque. The severe regularity of the figure is just so far discernible as to give harmony and repose to the irregular life and action out of which it is created, and is so far indiscernible as only to regulate a freedom which it would otherwise imprison.<sup>8</sup>

We have now pursued, we think, the philosophy of the subject pretty nearly to its limits, and if correctly, how false must be the supposition of those who would limit the perception of the

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<sup>8</sup> Compare, again, the Lectures on the Beautiful, by Coleridge, in Cottle's "Recollections".

Picturesque to modern times, and deny it any place in the minds and the feelings of those ancients of Greece and Rome, who have generally been looked up to in matters of intellect and taste as unapproachable models. To trace up the picturesque to an elementary principle of the intellect is virtually to assert the impossibility of its being thus limited. Who in point of fact can imagine, we will not say an Apelles, a Praxiteles, or a Phidias, not the author of the Belvidere Apollo, or the Medicean Venus, not that Homer, who could so vividly paint the scudding of a storm, or the moonlight upon the crags, or the wave gathering in the distance, and coming in, and bursting on the shore,—not any one of the great authors in poetry whose names are famous, but even any ordinary contemporary of theirs, with common taste and refinement, looking at a regular landscape composition of the present day by Claude or Turner, and not appreciating its beauty; or surveying, we will say, without pleasure the broken arches, the ivy-mantled columns, and the half-shattered tracery of the windows of Tintern Abbey; or wandering “*siccis oculis*” along the Rhine, with no feeling for the charm of the conformation of those piles of mediæval masonry on its banks, so regular at once and so irregular; so symmetrical, yet so relieved from formality in their fantastic accumulation of turret, or battlement, or pinnacle, on side or summit, that they have all the picturesqueness of the ruin without being such? As reasonably might we raise a doubt whether he had an eye for the regular proportions of the square or circle. Moreover, the evidence of facts confirms the antecedent probability; for, whatever stress may be laid (extravagantly enough, as we think, yet it is sometimes done) on the particular case of the formality of the gardens of Alicinous, described in Homer, or on the absence, if so be, of any elaborate landscape composition in the ancient poets, nothing is more certain than that passages can be produced, which, even apart from antecedent probabilities, and much more, admitting them, may fairly be considered to show as keen an appreciation of the picturesque, in the fullest sense of the word, in those writers, as is to be found in any passage of poetry in modern times. There are two instances out of many, which occur in Virgil, the one poet who, from his passionate admiration of the country and all belonging to it, is naturally the author we first turn to in a question of this kind. First, his notice of the view unfolding before the eyes of the shepherd, as the road turns:—

“*Janique sepulchrum  
Incipit apparere Bianoris*”;—

How few are the words, yet how perfectly picturesque is the

scene which they combine to flash upon us. “*Incipit apparere*”:—It is a landscape, the leading feature of which is a sepulchre, hoary with all its associations of the ancient past (like the tomb, we may suppose, of Cecilia Metella in the Appian Way, now existing); and it is a sepulchre, moreover, half seen, as it gradually emerges from the trees at the road-side; hence its regular outlines are partly hidden, and so relieved of their formality, by the foliage of those trees, whilst enough of them is shown at the same time to form a contrast with the lines of that foliage and of the landscape, and with the bend of the pathway which forms the foreground. The picture, in short, is drawn by the poet precisely as it would be certainly drawn by the professed painter. The second, and if possible more complete picture, of which we are thinking, is that of the reclining shepherd watching, from under the leafy arch of the cavern in which he is resting, his goats hanging from the thicket-tufted sides of the distant rock:—

“*Non ego vos posthac viridi projectus in antro  
Dumosa pendere procul de rupe videbo*”.

If any one will seriously maintain that the grouping of the numerous features of the scene here described is other than strictly picturesque, or could have been conceived or described by any one not naturally possessing a keen sense of the picturesque, we are at a loss to understand how poetry can be appealed to at all for determining the question; least of all, the poetry of those ancients, whose singular glory and prerogative, as compared with the moderns, is their indirectness; who utter what is poetical without the appearance of the incumbering self-consciousness that they are so doing, and whose genius in consequence would have been especially disposed to abhor deliberate scene-painting, or any manufacturing of a landscape in such a manner as to betray the manufacture.

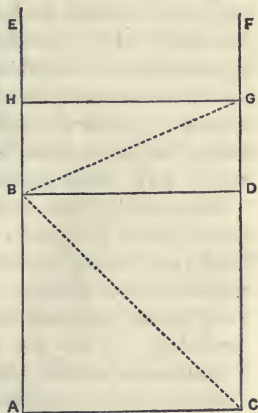
However, we may suppose our objector to be still unsatisfied, and his difficulty to proceed from a comparison which we may conceive him to institute between the classical temple and its proper correlative in modern times, the Gothic cathedral. He may point to the spires and to the towers, to the innumerable pinnacles, the flying buttresses, the pointed arches, the traceried windows, the quaint carvings, the deep porches, and the clustering columns, of Amiens or Strasburg, of Cologne or Milan, and pronounce the Gothic to be decidedly on the whole, a picturesque architecture,—picturesque according to the strict definition we have ourselves given, and commending itself in point of fact, to the artist, as something ready made to his hand if he wants a subject, without the absolute need of alterations for that purpose,



such as we found to be necessary in the case of the Greek temple. If the Gothic architecture, then, he may argue, is picturesque, and the classic unpicturesque, here is manifestly a phenomenon, which, notwithstanding all that we have hitherto said, has still to be accounted for; nay, which may safely be asserted to betoken some radical difference after all in the intellectual constitution of the originators of the two architectures; for here he may naturally remind himself of the German distinction between the classic and the romantic, the inventors of which have ever specially appealed to the broad differences characteristic of the two architectures in question, as substantiating the distinction; and, though we are not sufficiently at home in the literature of the "romantic" controversy to know whether it has been done, we suppose that nothing would be more plausible at first sight than to press the picturesque into the controversy on the romantic side. But a little consideration will show that the difficulty is not so serious that we need be driven to any unsatisfactory theory of this kind in order to escape it.

It may seem a contradiction, then, to say it, but the truth is that the Greek architecture, which we have been considering as formal, owes the whole of its beauty nevertheless to the picturesque principle. But our meaning will be understood, if the conclusion be remembered which was drawn when discussing the ruin: we then saw that the perfectly picturesque was as nearly as possible the equilibrium of the formal and the informal. For, this being the case, it will of course follow that every variety of gradation is possible from the formal onwards to the informal, till we realize that equilibrium. Thus, if the ruin, to return to our illustration, be but partially carried out, the result will be something formal in the main, but with a tendency to the picturesque; if carried further, yet not sufficiently far, it will then be picturesque in the main, but with a tendency to the formal. Just in the same way, then, as the Greek temple, when decay first begins to operate upon it, is a degree more picturesque than it was, when quite perfect, so, we say, is the perfect temple itself a degree more picturesque than it would be, were it quite formal; or, in other words, in so far as it is not the perfection of formality, so far is it picturesque. Now it is certainly not the perfection of formality, for, were it such, then the pediment, being a triangle, should be equilateral, which it is not (for, the base of it being larger in every case than the two sides, it is an obtuse-angled isosceles); and the rest of the façade, that is, the parallelogram on which the pediment rests, should in like manner be a square, which it is not, the leading lines of the Greek architecture being horizontal, or, in other words, the

width of the parallelogram being, as a general rule, greater than the height of it. In like manner, a more perfect formality would be obtained by the substitution of four-sided for round columns, or again of columns absolutely round like a ruler, instead of tapering upwards, as they do in the best architecture towards the capitals. Now as to the pediment, the isosceles triangle of which it consists was adopted by us above, as the very symbol of picturesque beauty, on the ground of its being the simplest possible exhibition in lines of a disturbed symmetry; and as to the parallelogram supporting this pediment, it will be easy to point out that it is precisely the same sort of exhibition of the picturesque in four lines which the isosceles is in three. What is it that we admire in a fine specimen of this part of the façade—for example, in the portico (to take the first instance presenting itself) of the Pantheon at Rome, which is an oblong parallelogram of the kind here referred to? We say of it that its *proportions* are admirable. Let us ask, then, exactly what is meant by this word proportion. Now we have seen it stated, that it is a common thing for an architect who would have a room in a house which he is planning, well proportioned, to secure his object by the following empirical rule:—He draws any square ABCD, as in the diagram annexed; produces the two sides AB and CD indefinitely to E and F; draws the diagonal BC; from CF cuts off CG equal to this diagonal; through G draws GH parallel to AC, and in the parallelogram ACGH has produced a figure, the proportions of which satisfy the eye and answer his purpose; whereas any perceptible departure from this form, whether by protracting or reducing the length of the parallelogram here drawn, will, so far as the effect is concerned, distinctly injure it. What, then, is the explanation of what we call in this particular case a good proportion? The word proportion might tempt us at first sight to imagine that there is some discernible harmony or correspondence, properly so called, between the longer and the shorter of the four sides of the parallelogram, as there manifestly is between the two pairs of sides opposite to each other. Yet not only is there no such correspondence at all, but even the charm of the effect is actually due to there being none, as a mathematician will at once see on considering the figure; for it being a



mathematical truth that the diagonal of a square is incommensurate with the side of it, it follows that the longer side of the parallelogram (CG) being equal by construction to the diagonal CB of the square of AC, is also incommensurate with the shorter side, which is AC.

Now the above is the analysis of the entire front of the Pantheon below the pediment, and there remains a parallelogram of the kind just described, which itself is divided by pillars into a series of intercolumniations, consisting of minor parallelograms of the same character, at right-angles to the main one. The comment, then, suggesting itself on the observation of these facts is the following:—Here is exactly, it would seem, the same sort of effect produced by the four lines forming the sides of the parallelogram, which is produced by the three sides forming the sides of the isosceles triangle, which is the pediment above the parallelogram. Both the one and the other is an example of “disturbed symmetry”. The parallelogram, that is, exhibits, as does the triangle, the combination of a certain correspondence with a certain discordance; the correspondence being displayed in the accurate equality of the sides parallel to each other, and the discordance in the disparity of the two sides touching each other, which in fact are mathematically incommensurate, as just said. On the other hand, had the parallelogram of the façade been so lengthened that the two longer of its sides should have been exactly the double of the two shorter, a harmony or common measure would have been then created between the two, but at the same time the “proportions”, so admirable at present, would have been destroyed by the process.

Remaining true, therefore, as it does, that the Greek architecture, speaking broadly and generally, is decidedly of the formal kind, and non-picturesque in consequence of so being, still it would not be what it is, were it not for the picturesque principle. It is formal because the preponderating effect is on the side of formality. Thus the parallelogram just considered is absolutely formal so far as this, that it is composed wholly of straight lines, is divided into its component parallelograms by straight lines, that these lines are all of them arranged on a system of parallelism, that all which are parallel are also equal, and that the angles contained in the figure are all right angles. In all this, we say, the symmetry is so complete, and the effect thereof so formal, that the disturbance of this symmetry in the particular instance of the disproportion between the two sides touching each other in every parallelogram, is insufficient to establish the balance on the picturesque side.

The Greeks and Romans, then, undoubtedly understood and



appreciated the picturesque principle, since they used it to give the crowning perfection to a formal architecture; and the Gothic architect, in point of fact, did nothing more than develope this particular element, already germinant in the classic, in like manner as he developed the simple colonnade and area of the Roman basilica into the multiplicity of pillars and redundance of aisle and cloister of his own cathedral. This will be perceived, however, more distinctly, if we consider for a moment the leading facts of the history of the formation of this architecture.

“*Domus Jacob de populo barbaro*”; the “Gospel palaces” came originally, there is no doubt, from Egypt: for from Egypt it was that their beginnings, the colonnade and the columnar temple, such as are to be seen amid the ruins of Thebes at the present day, were introduced into Greece; from Greece, where they underwent great modifications, they were transplanted to Rome, and there further modified; and the final alterations which they received afterwards from the architects of the north produced Gothic. It is also notorious that the main element in that vitality by which the hall of Ozymandyas developed in the progress of centuries into Cologne Cathedral, was the Roman addition of the semicircular arch to the Greek column.

Now, this addition was one especially calculated to assist the development of the new architecture in the picturesque direction. First, the place of the arch was above the intercolumnar parallelogram, which became, in consequence, to a certain amount less formal—that is, more picturesque, than it was previously. And further, as it so happened that this addition gave it an extension of form upwards, there followed, in due course, both the general substitution of the upward or vertical line for the horizontal, as the dominant one in the new architecture, whence the after-development of tower, pinnacle, and spire; and there followed, in particular, that sharpening of the arch itself, hitherto semicircular, which was the culminating and crowning effect of Gothic development.

If we ask ourselves, then, the question, Why is the pointed arch so superior, as all acknowledge it to be, in this particular architecture, to any other variety of it; why is it the most especially Gothic of Gothic features; why is it so perfectly in keeping with the rest of the building? we shall find that what we have called the principle of the Picturesque will supply the answer. The excellence of the pointed arch lies in its ministering to the expression of those two elements of sameness and difference which are the essence of the picturesque, and this, alike if we consider it in relation to the rest of the architecture, or as taken by itself. In relation to the rest of architecture, it is pic-

turesque, because, while in its sharpness and verticalness it is in harmony with the points, the pinnacles, the spires, and, in a word, the upward convergence of the whole building, it tempers at the same time, with a softening operation like that of the sun on winter frost-work, the angular rigidity of these masses, by the beautiful contrast of the flow of its own curves. Again, of itself, and independently of its position, it is picturesque also; for while there is symmetry in the two curves composing it,—absolute symmetry, in so far as they are the counterparts of each other,—there is also disturbance of symmetry in the fact that, proceeding as they do, either of them, from a different centre, they are each broken by the other at the point of collision. It is the semicircle with its centre cut out, and the two sides approximated; and accordingly, while in the semicircle we perceive absolute uniformity and undisturbed harmony, the eye following its curve uninterruptedly from end to end, in the pointed arch, on the contrary, the sweep of the compass leads us inevitably away from the arch when we have followed half of it; whence we perceive it to be composed, not of one curve but of two, and these both of them incomplete because antagonistic.

The pointed arch, then, being confessedly the special and representative feature in Gothic architecture, and being also as we have now shown, the very sun and embodiment in itself of the picturesque principle, we may securely, we think, assume that the true key to the general analysis of the effect of that architectural system in all its parts, is the principle in question; the same principle, as we have said, being the basis also of the combination of forms in the Greek system, but developed, owing to the invention of the arch, in a more abundant material, with more variety, and to a certain extent, in greater perfection, in the instance of the Gothic. To pursue it through all its ramifications as regards Gothic, would be a needless labour; but we have in mind more particularly at this moment those singular and most characteristic creations of good Gothic which are known as the “grotesques”, those fantastic combinations of animal and human form, such as they are presented on the outer wall of Durham Cathedral, or more conspicuously still in the cloisters of Magdalen College, Oxford; and with the application of the picturesque principle to the solution of these phenomena, great perplexities as they confessedly are to all theorists, and too important, as they may certainly be considered, to be passed over in silence, we will draw to a conclusion.

The Grotesque, considered in its essence, may be laid down to be the expression of the conflict of opposite or contradictory principles in one subject, that subject being a living creature.

A grotesque face, for example, is one distorted in such a manner from that composed symmetry, which is the ordinary expression of intellect and self-control, as to appear to be given over to the domination of an inferior principle; and it is under the form of what is virtually a grotesque figure, that is, under the form of a combination of man and animal into one, that Plato in the Republic symbolises the union of the two antagonist principles of reason and passion in human nature. If the theory, then, of the Picturesque, which it is the object of this paper to establish, be true, the Grotesque in this particular point of view is akin to the Picturesque; our very definition of the latter being, if we may repeat again, "disturbed symmetry", or the balance of the two principles of sameness and variation, regularity and irregularity, proportion and disproportion, in the creation of form and figure by the combination of lines.

The explanation, then, of the Grotesque, will be parallel to that which has already been given of the pointing of the arch. That is, whatever may have been, as a matter of history, the origin of the introduction of the grotesque into Gothic architecture, whether that potent auxiliary of all art, mere accident, as probably was the case (the proverb *τύχη τέχνην ἔστρεξε καὶ τύχην τέχνη* being one of the truest), or whether the design, as some say, of representing moral evil, or whether simply, as Mr. Ruskin would have it, diseased imagination,—however this may be, its æsthetical justification, at any rate, or, in other words, the ground of the prominence so especially given it in good Gothic, was, that the architect who employed it felt it to be in harmony, for whatever reason, with the style of the architecture; the truth being, whether he understood it or not, that, much in the same way as the finished elegance and repose of the sculpture enclosed within the frame of the pediment of the Greek temple, expresses the harmony and repose predominating in that architecture, so does the abnormal and irregular life of the grotesque sculptures in a Gothic cathedral, symbolise that wayward and restless departure from rule and symmetry which belongs to the Gothic by reason of its picturesque character.

[In connection with the subject of the preceding paper, the reader is referred to one by Mr. Cope in the *Cambridge Essays* for 1856, who views, however, the subject differently. He quotes a passage from a beautiful chapter in the *Cosmos*, vol. ii. p. 372 (Bohn's translation). Humboldt takes an intermediate view, quoting Schiller, and referring in a note to an excellent paper of Edward Müller, "*Über sophokleische Naturanschauung, und die tiefe Naturempfindung der Griechen*", which supports Mr. Scott. The latter had seen Mr. Cope's article, and from his knowledge of German Literature, must no doubt have been acquainted with the writers referred to: he does not allude to them, possibly because the question about the ancients only came incidentally into his discussion.—ED.]



ART. II.—*Views preliminary to the study of Political Economy*—By JOHN O'HAGAN, A.B.

I.

THE object of political economy is wealth, meaning in a general way all objects of human desire which are produced by industry. The sources and the channels of national wealth; the causes which make a nation rich or poor; the influences which determine in one way or another the distribution of wealth in society—all come within the province of Political Economy. And when we remember how various these causes and influences are, existing partly in the laws of external things, but depending in great measure upon the constitution of man himself, upon his natural wants and capacities, and not only so, but upon morals, religion, customary and positive law—we must conclude that the circle of studies within which Political Economy ranges is far from narrow.

There is, however, a limitation of the subject, which writers upon Political Economy are desirous to impress upon their readers. Not only have causes residing in the moral and intellectual condition of men an effect upon their state of social wealth, and as such, come legitimately within the scrutiny of the economist, but, on the other hand, the condition of a people or an era in regard to wealth, may have a retroactive effect upon their thoughts and tendencies, and so upon their morals and happiness. Into this latter class of inquiries, Political Economists, as such, decline to enter. With the *uses* of wealth in relation to the higher faculties and destinies of men, they say their subject has simply nothing to do. Now as no one is bold enough to assert that wealth constitutes the supreme good of men or nations, and as few even maintain (though some do) that it invariably conduces to that good; as few deny that wealth may exist in excess or under circumstances leading to evil, Political Economists are naturally asked, why they exclude that class of considerations, which, if their studies are to have any value at all, must form their goal and test.

To this they answer: We do so for the sake of method. Every science has a right to circumscribe itself. Every writer is entitled to make his theme as limited as he pleases, so as he takes care that his conclusions are made no wider than his premises. We do not undervalue, they say, the importance of investigating the relation between wealth and morality or happiness; all

we insist on is, that such is not our subject. As a treatise on ship-building omits the topic of maritime-power; as a legal text-book treats of what the law is, not what it ought to be, leaving the latter to the department of jurisprudence; as a writer on agriculture is excused from discussing the corn-laws; so, they say, we claim to be permitted to follow our own class of researches, without being involved in inquiries which, however important, are to us irrelevant; we draw our conclusions within our own precincts as carefully as we can: to apply them belongs to a wider science—to that which, embracing the whole nature and circumstances of man, his wants, passions, and capacities, determines what social arrangements are on the whole good for him or evil.

All this sounds extremely fair, and is in indeed in point of theoretical reasoning unanswerable. What is commonly said in reply is, that Political Economists are inconsistent with their own professions; that so far from being neutral on the question of the intrinsic good of wealth, they are in general zealous advocates on the one side; that they manifest a desire for the increase of wealth to an extent perfectly unlimited, and penetrate their readers with like opinions.

If Political Economists have sinned in this way, and we are far from acquitting them, it is, we say, the fault of the men, not of the subject, except in so far as it is common to Political Economy with all other studies to create a prepossession in its own favour, and to exalt insensibly in the mind of the student the value of the things with which it deals. It is natural to exaggerate the importance of that to which we devote time and effort.—It has been said indeed with truth and point, that it would be absurd to infer that a writer on tactics means to recommend perpetual war; yet, no doubt, a person much given to military studies, is likely to acquire a taste and desire for military operations for their own sake, which would unduly bias him in deciding between war and peace. The same observation is proverbial with respect to professional influences. And in the case of wealth especially, which represents almost all natural objects of desire, we can very well understand that it may require no small degree of reflection and vigilance to guard against this tendency.

But, apart from all this, Political Economy has been made to answer for much more than its own sins. In itself it has nothing to say to human actions in their moral aspect; yet, as its reasonings are mostly based upon that attention of each party to his own interest, which, in fact, takes place in all matters of barter and exchange, it has been, to a large extent, looked upon as of

kindred with the school of moral philosophy which makes self-interest the legitimate mainspring of all human actions.

Again, the period since Political Economy began to claim public attention, has been an era, on the one hand, of a development of wealth, and a devotion of human energies to its acquisition, without precedent in history, and on the other, of the growth of large and grievous social evils. How far these facts stand in the relation of cause and consequence, it would be premature in this place to inquire; but many who believe that they do, and who feel keenly the extent of the evils, are apt to turn round upon Political Economy, as if it were a code professing to justify and let loose an unbounded cupidity—as if it were, in fact, as it has been termed, the “Gospel of Selfishness”. This, we repeat, is unjust. We are not interested in defending individual writers, some of whom have gone out of their way to enunciate doctrines highly false and mischievous; but in the science itself, in its axioms or principles, so far as they have been wrought out, there is nothing whatever to prevent him who holds them from being at the same time a zealous foe of the selfish school in ethics, or the utilitarian school in politics; nothing to interfere with any conviction which he may otherwise form as to the evils of excessive wealth, or of the reign of a material and mercantile spirit in society.

It is not, under these circumstances, surprising that we should seek to preface what we may have hereafter to say upon the specific subjects of Political Economy with some inquiries of a more fundamental character—inquiries as to the bearing of man’s condition, in respect to the production and distribution of wealth, upon his true good; how far the actual arrangements of society in respect to wealth are susceptible of reconstruction; and again, what is to be hoped from progress.

We feel convinced that our notions in general upon this class of subjects are very floating and indeterminate, and that we are, with respect to them, greatly under the dominion of imagination. Let a picture be drawn of the pastoral and patriarchal life, or of a primitive people whose robust and simple manners riches have not yet come to transform, and we feel ourselves naturally attracted towards a state of society which the instinct and tradition of mankind have made typical of the golden age. But again, if we turn and contemplate the enterprise, acquisitions, and achievements of some highly prosperous and opulent nation; we yield the homage of an involuntary respect. We condemn now the prosperity which entails corruption, now the penury which forbids refinement. In one mood we appeal to history, that wealth gives birth to luxury, which is followed by vice, effeminacy, and



national decay; and again, we remember that industry is the parent of wealth, and ask ourselves, is evil the inevitable offspring of good? Is the world so strangely framed—is human existence bound by such a fatal chain of paradox, that our very virtues do little else than accumulate the seeds and materials of vice?

No doubt the questions thus opened are difficult and momentous to a degree impossible to overstate. If we enter upon them at all, and ask our readers to accompany us, we must solicit from them much indulgence. We may, on the one hand, be found insisting upon principles so plain that they might appear to admit of being simply assumed and passed over; and, on the other, discussing topics of a nature seemingly too exalted for the political economist. But we would ask, in the former case, our readers to believe that, if we dwell upon what may seem truisms, it is because we conceive their denial to be involved in some more specious error; and, in the latter, to remember that, without reference to the nature and destiny of man, no philosophy of his social existence is possible.

In the first place, then, and as the basis of all, let us recall the simple axiom, that society, whatever be its attributes of wealth or power, exists solely for the sake of men, the individuals. This fundamental idea—the only one which common sense can understand or accept, the basis of all disquisitions upon politics or natural law—is yet one likely to be overlooked or implicitly rejected in epochs in which society, in the aggregate, has obtained a high degree of outward aggrandizement, and is certainly discordant with much that meets us in the present day. A fashion of thought has grown up which loves rather to contemplate and rest in the collective action of mankind. An old and natural metaphor, by which we speak of the *life* that resides in a state or an institution, has been almost transformed into a literal fact; and society, meaning sometimes a nation or cluster of nations, and sometimes the whole human race, is spoken of as if it were a living being, in such a sense that its greatness and perfection could form an end quite apart from the welfare of individual men.

This conception may be illustrated, and is indeed often supported, by analogies drawn from those special and limited organizations, whose end is to be looked for in the work which they have collectively to accomplish. Take, for example, an army. No one would say that the comfort or virtue of the individual soldier is, however desirable, the end for which an army is constituted. Everything else must be subordinate to its excellence and efficiency *as* an army. It lives for what it has to do, and is



successful when the town is taken or the campaign is won, without making account of the perishable units of the rank and file.

In some such light do the thinkers to whom we refer regard states and communities. The end of their existence is the greatness to which they attain, their victory over difficulties, their subjugation of the powers of nature, the sciences, arts, politics, which they develope. Men themselves are weak and transient. Society has its own vital principle, which endures for ages. Is it not then, they say, something incomparably higher and grander to look for the end of human efforts in this continuous existence, rather than in the fleeting emotions of individuals?

But they call on us not to bound our conceptions by the limits of one state, but to extend them to the family of nations, and beyond present forms and existences, to those which shall hereafter arise. True, they admit, that the principle of life, which gives individuality to a nation or an era, ceases at length, but only ceases, that new forms, new organizations, may arise, rich in all that has been acquired before them, and adding fresh acquisitions to the store. All that the ancient world has given of letters and art, of philosophy, statesmanship, and law,—all that modern ages have added of science and humanizing influences,—remains the indestructible possession of mankind. Thus, to the ever-increasing knowledge, power, and greatness of the human race, there seems absolutely no limit. Do not conceptions like these, they ask, annihilate all consideration of individuals? Who would bestow a thought upon the slaves who wrought at the Pyramids or the Temples of Carnac? They and their little hour of comparative happiness or misery, are covered by the night of three thousand years, while the Pyramids and the Temples remain, an attestation of the greatness of old Egypt—a contribution to the greatness of collective man.

Ideas such as these, which confer upon abstract existences the attributes of real being, have, no doubt, considerable power in captivating the imagination. One cause of their attraction lies undoubtedly in this, that they seemingly appeal to a true and noble instinct of man's nature—the instinct of sacrifice, of forgetfulness of self—the call to merge petty personal ends in the great circle which surrounds him.

To see this conception, which sinks and absorbs the individual, and all individuals, in the idea of the collective existence of the race itself, asserted vehemently and without reserve, we would refer to the lectures of the celebrated German philosopher, Fichte, on the characteristics of the age. This distinguished writer not only maintains that the human race col-

lectively possesses an existence, but that it alone possesses real existence. "The individual life", he says, "has no real existence, since it has no value of itself, but must and *should* sink to nothing; while, on the contrary, the race alone exists, since it alone ought to be looked upon as really living". And while he enforces the necessity of the spirit of sacrifice and forgetfulness of self, he warns us clearly that he means us to forget oneself, not in others regarded in a personal character, but in others regarded as the *race*. And this life, in the race or in the idea, he does not shrink from designating as the attainment by man of *eternal life*, when he comes to live, not in himself or in other individuals like him, but in the one, mighty, progressive, self-sustaining, perpetual, and infinite life of human kind.<sup>1</sup>

This extreme and daring development of the idea to which we have alluded, serves to show us what it radically is, and to what it tends. For it is manifest, that in the thought of Fichte, the idea of collective humanity was exalted into actual Divinity—that men are called upon to devote themselves to, and annihilate themselves in, an essence upon which he confers the attribute of sole real existence—that the idea of humanity is thus, for him and his school, the object and the outlet for the instincts of religion and the feeling of the infinite, ineffaceable from the heart of man, and is actually substituted, in their system, for the Creator and Governor of the world.

But, apart from mystic conceptions such as these, the idea that it is possible for man to have a social end, independent of his individual one, has become largely infused into the spirit of the age. In M. Guizot's lectures on European Civilization, he refers, we may remember, to its twofold effect: first, in the development and improvement of the individual; and next, in the development and improvement of society. He says, and with justice, that these two effects have a mutual influence, one upon the other; that, in general, good institutions have a favourable action upon the character of the citizens; and again, that the character of men is certain to be reflected in their institutions. But still the great question remains behind, which of these two objects is principal, and which is subordinate? Let us hear his own words.

"Of these two developments of which we have spoken, and which constitute the fact of civilization, of the development of society on the one hand, and of humanity on the other, which is the end, which the means? Is it for the perfecting of his social condition, for the amelioration of his existence on the Earth, that

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<sup>1</sup> Fichte's Popular Works, vol. 2, Smith's Translation.

man develops himself altogether—his faculties, his sentiments, his ideas, his whole being? Or, on the other hand, is the amelioration of the social condition the progress of society, society itself no more than the theatre, the occasion, the instrument of the development of the individual? On the answer to this question depends inevitably that of knowing if the destiny of man is purely social, if society exhausts and absorbs the whole man, or if he bears within him something foreign and superior to his existence upon Earth. Gentlemen, a man of whom I am honoured in being the friend—a man who has passed through meetings such as ours, to ascend to the first place in assemblies less peaceful and more powerful—a man, all whose words remain engraven where they fall, M. Royer Collard, has resolved this question; he has resolved it, according to his conviction at least, in his speech upon the proposed law relating to sacrilege. I find in this discourse these two phrases: ‘Human societies are born, live, and die upon the Earth—there are all their destinies fulfilled; but they do not comprise the whole of man. After his engagements to society, there remains to him the noblest part of himself, those high faculties by which he raises himself to God, to a future life, to unknown good in an invisible world. We, individual and identical persons, true beings gifted with immortality, we have a different destiny from states’. I will add nothing”, M. Guizot goes on to say; “I will not even undertake to treat the question; I am content with stating it. It meets us at the end of the history of civilization: when the history of civilization is exhausted, when there is nothing more to say of actual life, man invincibly demands of himself if all is exhausted, if he is at the end of all. This is, then, the last problem, and the highest of all those to which the history of civilization can lead. It is sufficient for me to have indicated its place and its greatness”.<sup>2</sup>

From the tone of the above passage, as well as from the general character of M. Guizot’s mind and writings, we think it clear that his own solution, if he had given it, would have coincided with his friend’s; but it is singular that he should have considered the question as doubtful—most singular that he should have treated it as one which he was not called upon by his subject to determine. He says it is the last problem: is it not the first and fundamental one? He says it meets us at the end of the history of civilization: does it not confront us on the threshold? If the two objects of civilization of which he speaks stand in the relation of means to end, if one be principal and the

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<sup>2</sup> Civilization in Europe, Lecture I.



other subordinate, surely to expound, insist upon, and enforce this relation, is absolutely necessary to the comprehension of his subject. Both positions cannot be true, and according as we take up one or the other of them, we necessarily alter our whole perspective of things. We cannot help thinking that, notwithstanding the incontestible ability of M. Guizot's book, this original error taints it throughout with an unfixed and somewhat sophistical character, and renders it, however interesting in many respects as history, extremely unsatisfying as philosophy.

Our object is not civilization, which, as M. Guizot truly says, it is much easier to understand in a loose popular sense, than to define strictly; but is the influence of wealth. To treat of wealth as an agent in civilization would be a comparatively easy task, for its topics lie abundantly at hand, but rather too vague for our purpose; we have to consider it as civilization itself must ultimately be considered—namely, as an agent in human good. The question, whether there can, in the nature of things, be a social end superior to, or independent of the individual one, lies, therefore, at the threshold of our subject too, but surely it will not cost us much difficulty to resolve it.

Let imagination, let the power of abstraction, be carried to the uttermost, an obvious analysis brings us to the simple truth. When we speak of the immense blessings and benefits which the social bond confers upon man—how it educates, controls, developes him, brings out his highest qualities, guarantees his possessions, helps to save him from himself,—we say what is all just and true, but all in conformity with the proposition,—that which makes man the end, society the means.

And when we speak of the *life* with which society is instinct, we use metaphoric language to express an undoubted fact. Unquestionably there exists in every community of men which is better than a heap of uncementing sand, a spirit aptly likened to the vital principle in living beings, which pervades and informs the whole body, gives it unity and coherence, is the source as well as the guide of its energy, and, deprived of which, it decays like organic matter after death. All this is true, but it is true that in all this the life of which we speak is nothing more than the common ideas, feelings, and beliefs diffused among the members, and transmitted from generation to generation.

Again, we are referred to the high claims of society upon its members, the emotions which it awakens, and the sacrifices which it exacts. Certainly the advantages which man derives from society are so great that, for its existence or its well-being, he feels himself called to the highest degree of labour and devotion. And it is the representative and symbol of such a host of



memories and affections that man, whose mental vision is too limited to embrace things as they exist in detail, concentrates them upon the abstract existence, upon his country, or tribe, or house, or order, for which he seems to make the sacrifices really bestowed for his brethren present and to come.

But when all is said, it is in *them*, in the individual, sentient, conscious human beings, in their good or evil, happiness or misery, or nowhere, that the end of the constitution of things is to be sought. Let us take the world at any moment of time, place it as many ages off as we please, and what will be found to have existed till then upon the Earth but individuals? It is surely puerile to have to insist that railways are but stone and iron—a code of laws or an epic poem so much stained paper—the noblest statue no more than the block in which it was imprisoned, apart from the human beings whose minds they soothed and elevated, or to whose comfort they ministered.

Why have we insisted at such length upon a principle which may seem so plain? Because, in the very outset of our inquiries, it is of the utmost importance to apprehend clearly and hold resolutely the principle, that the good of which we are in search must, in the last result, be traced to its home in the individual heart; because the opposite mode of viewing things, at all times a temptation, is peculiarly so in our day. The conquests of material civilization during the last century have been so immense, so dazzling, and so splendid, that to accept them as the greatest end to which man can attain, to rest in them, to bow down before them, has become the dominant superstition of the hour. We are not disparaging or prejudging these things, which have, no doubt, their proper and appointed use; but we ask that men should learn to look *through* them, to know that there is a bar at which they must be tried, and, above all, to guard ourselves against the fatal tendency of mind which an undue admiration of them produces—a tendency to disregard and trample on individual rights and happiness in the view of some great collective result.

Yet, having gone so far, does not a further question beset us: What is the individual good of which we are in search? This topic, which occupied and divided the greatest thinkers of antiquity, meets us here, and neither its scholastic form, nor the extent to which it has employed the human intellect, can exempt us from referring at least to the primary truths upon the subject. It is, moreover, in some degree forced upon us by the view of human good which political economy takes, and properly takes, within its own limits,—possessing, within those limits, a certain relative truth—absolutely and mischievously false outside them.

Everything, we know, which man naturally seeks, whatsoever gratifies any appetite, either of sense or spirit, whatsoever confers pleasure or removes pain, or tends to do either, is in itself and considered in the abstract, undoubtedly a good: we have no naturally tendency whose object is evil. To say otherwise would be to assert for evil that absolute and substantive existence which we abjure—would be to imply maleficence in our creation, and thus to fall into the very darkest of speculative errors. All things that are natural objects of human desire are in themselves good, and if to increase human good in that wide and indiscriminate sense be all that is claimed for increasing wealth, our task is ended before it is well begun, for it enters into the very definition of wealth, that it should consist of those things which are directly or indirectly productive of pleasure or preventive of pain. If we refuse to recognize any order or subordination among the desires of man; if we are to place body and spirit in equal honour, to discard all thought of the harmony or even of the unity of the human person, and see in man nothing but an assemblage of powers and propensities, each having its own scope and its proper gratification; if we could enrol ourselves as disciples of a philosophy so grovelling, we should have no more to say but to bid mankind amass without stint where and how they could, the means of enjoyment, material or mental, as inclination prompts. Now, it is to be observed, that it is precisely in such indiscriminate sense alone that the political economist does or can regard human good. His science speculates upon the desires and appetites of men so far as they require the results of labour for their gratification, and upon wealth in all its forms as the instrument of such gratification; but of those desires it has no measure, except their number and intensity. As to their comparative worth, it is absolutely blind and unintelligent. It would be as reasonable to seek from geometry the results of chemical analysis, or from arithmetic that it should weigh as well as count its units, as to look in the laws of supply and demand for any gauge of the intrinsic worth of what is demanded and supplied. But outside of the narrow field of the economist, the philosophy which would place all our inclinations on a par would be an epicureanism too gross to need to be confuted. What is said by those who place the good of man and his highest good in the fulfilment of his desires, is commonly this—that man has indeed various powers and tendencies, but that they are of various degrees of worth, the mental above the bodily, the emotional and æsthetical above the mental; and that the progress of man towards perfection consists precisely in his subjugating and subordinating more and more the lower faculties to the higher. What-

ever truth there may be in this, it is, as we conceive, very wide of the whole truth. Even among the animals we mark the existence of various capacities, higher and lower. Who would not say, for example, that the yearning of the brute-mother over her young, the delight in the master's caress, the ecstasy with which the bird pours forth his heart in the season of song, are gratifications higher in their kind, constitute a finer joy, than the sensual pleasure with which they take their food. And conceding for man an organization incomparably richer, grander, and more composite than that of any of the animals; yet, if we look no further than the gratification of particular faculties, however high, we cannot arrive at more than a difference in degree between man and the inferior creatures, a difference not greater, perhaps, than exists between members of the inferior creation themselves. The specific and peculiar distinction of man must be looked for in something very different. It consists in this, in the stamp of infinity, which marks the two master faculties of his nature, his intelligence and his will, that he is endowed with an intellect whose scope and end is infinite truth, and a will whose scope and end is infinite good.

When we say that the object of the intelligence is infinite truth, we do not mean of course that it is given to the understanding of any creature to embrace at once all truth, but we mean this—that man has been constituted the intelligent spectator of the infinitely wise *order* which the Creator has established in the universe, with capacity, ever more and more to enter into and apprehend it, and to follow His own words in pronouncing it to be good.

The intelligence of the lower animals, so far as we can pronounce upon such a subject, begins and ends in the apprehension of the individual objects present to the sense. Of the relation of things to one another, and of the part and office which each fulfils in the great scheme, it would be absurd to affirm that they have any conception. That is proper to man. The faculty of knowing each particular star not in the sensation of light alone, nor even in the feeling of beauty alone, but in the perception of its function as the minister of such light and beauty, and as portion of a universe of like ministers, is his. Thus the specific characteristic of the human intelligence is the knowledge of order; of all knowledge the highest, for it rises to embrace the design of the Maker in the formation of all that has been made.

But, to be the intelligent spectator of the order around him and within him, is but the smaller portion of the dignity conferred upon man. He has been called to an eminence incomparably higher—to that of being the voluntary coöperator, the fellow-



workman of his Maker in the sustainment of the order so established. This is the great gift of freedom of the will—the power bestowed upon man of being in his measure an original principle of action, and of acquiring the merit of using that power in conformity with the knowledge of good imparted to the intelligence.

And as every creature finds its felicity only in following the law of its nature, so is it with man. In one sense, happiness *is* his being's end and aim, in the sense in which it is coincident with and consequent upon virtuous action, and it is, at all events, a vain philosophy which forbids him to crave after it. He cannot help forming to himself an ideal of satisfaction and enjoyment in which his whole nature may find repose. Surrounded, then, and solicited as he is by a multitude of objects having power to gratify his varying desires, it would be no wonder that he should seek in them, one after the other, the means of appeasing this great hunger, if it were not that his intelligence led him to the comprehension of infinite good, and pointed out to him that his will, his action, and endeavour are to be directed to all things whatsoever in proportion as they lead to that. And it is in this direction of the will, this subordination of the faculties, this free coöperation with infinite wisdom, and in this alone, that the sense of complete satisfaction, the repose of the whole nature, the happiness, our being's end and aim, is to be looked for.

The Earthly perfection of the human being consists then in this—that with the utmost possible light of the intelligence to indicate to him his duties, he should follow that light with the utmost devotion of the will.

In their apprehension and enforcement of this great truth—the truth that man's highest good is at all times an internal one, at all times strictly within his own power, and consisting in the right direction of the will, lies the claim of the great Stoic sect to the admiration of mankind. It was this which they meant to express by such phrases as “living according to nature”, “coöperating with the universe”, and similar sentences common in their writings. These sayings yield indeed an easy handle to ridicule—a still easier one is afforded by their inconsistency in practice, their failure to realise what they professed. Such failure we can now see to have been inevitable, for whatever their insight as to ends, they were, in respect to means and possibilities, entirely blind. Even the great truth that man's highest good is at all times strictly within his own power, was, as they held and taught it, an error, for it is true only in this sense, that we have at all times the power to ask for that strength in well-doing which is not in ourselves. That man must stoop to conquer, was the grand secret hidden from the Stoic. They held up



an ideal of transcendent virtue to which they bid men aspire, while to do so was but to point out the inaccessible mountain height as the resting-place for the feeble heart and broken wing. In the lecture-room, indeed, or the closet, the disciple of the Stoic might, through that delusion which pursues man to his grave, persuade himself that it was easy to achieve what he had learned to admire; but when, in the world of action and temptation, all this splendid theory broke down, it was too tempting a theme for the scoffer, who would see nothing in this Stoic ideal but a phantom and a cheat. Still we cannot refuse its just honour to that noble school, which, in the old world, raised the banner of labour and sacrifice against effeminacy and sensuality; nor will we be found to subscribe to the mean judgment which could deliberately exalt the champions and providers of material comfort above the noble, even if ineffectual, aspirations after wisdom and virtue.

There are, however, two great distinctions between the Stoic view and ours, which we advert to here, because they serve to bring out what we have finally to say upon this subject. Man, we know, possesses not only the high faculties of which we spoke, but he has also the inferior sensitive nature, which he shares in common with the animals, but in him more subtle, delicate, and complex. And he grows up with an inner world of sympathies and affections, all capable of a gratification or a wound. Now, that this physical sensitive nature could be in any way the seat of good or evil, is what the Stoic absolutely denied. The wise man possessed his soul self-centred, complete, immovable; and outside of wisdom there was no good. External things were matters of no regard whatever. Pleasure or pain, wealth or poverty, sickness or health, were simply things indifferent. We judge far otherwise. We concede, indeed, and assert for moral good, not merely the supremacy over all other good, but a supremacy of such a kind as to render the one absolutely incommensurable with the other. The right exertion of the will of any human being, in however slight a degree, possesses a value against which the sum of all actual and possible enjoyment is not to be weighed. But, to go further and deny that external good or evil exists at all, must be to use these terms very differently from their natural human meaning. To say that ease of body and mind, or the gratification of the legitimate affections, is not good for man,—that anguish and bereavement are not evil,—is to do violence to our deepest instincts. Outward evils may be, indeed, and should be, the occasion and subject matter of the highest good; it is for that end they have been ordained. The mind may become “sovereign o’er trans-

mented ill"; but surely in that very saying the point is conceded,—that must have been evil beforehand which is thus susceptible of being transformed to good. And, in a world like ours, made up of infinite contrivance, all directed to the well-being of sentient creatures, it is surely a needless task to attempt to prove that the happiness of the beings whom He has made is portion of the design of the Creator. To us, Christians, at least, this question admits of no controversy: it is proved by the very precept of charity, which bids us minister, not merely to the internal, but to the outward and bodily good of our fellow-creatures.

But there is a second question of more importance still. Not only did the Stoic deny that external things could form of themselves an end,—as means or influences they were equally worthless. His ideal would have been at once destroyed by the supposition that it could be dependent on or affected by anything outside the mind itself. That heroic temper to which they aspired was not to be the creature or slave of circumstances, but lord of itself and them. Now, here also there is a certain conformity with Christian teaching. We also are taught that, to the rightly-directed heart and will, the actual state of outward circumstances, in which man may for the time be placed, is infallibly the best: that is, supposing the will to be entirely right,—an enormous postulate. But we are speculating, not for the perfect, but for men as they exist—the pliant servants of desire and fear. We treat of beings, who are moulded and fashioned by outward influences to a degree hard to estimate, in whom the will, though it never wholly loses its essential freedom and regal attributes, is yet so broken and enfeebled that it is perhaps true, upon the whole, to say of all the generations of men, that they are least evil where they have least temptation.

Therefore it is that the outward circumstances which surround men, so far from being to us, as to the Stoic, things of no importance, are of the deepest interest. Social condition, laws, customs, prejudices, even feelings which are susceptible of ridicule, such as family or national pride, if they can be engaged on the side of good; whatsoever, in its degree helps to form a bulwark between the unprotected will of man and the coarse allurements which appeal to his passions, are to be accepted and rejoiced in. And amongst the external facts thus tending to influence and control mankind, surely their condition in regard to wealth is none of the least important.

Upon this subject we can give at present no more than a rapid glance at the conclusions to which our inquiries may lead us. We may, perhaps, conclude, that as the progress of nations in wealth is clearly a natural law, it was intended to contribute to

their good; but we will guard ourselves against the fatalism which proclaims that it has such tendency certainly and of necessity. On the contrary, our judgment will be likely to be, that it is impossible to separate the question, how far riches are a real benefit to a nation, from the consideration of how they are acquired, and to what uses destined. In the infancy and adolescence of society, growth in wealth is, generally speaking, an almost unmixed benefit. It is the offspring and symbol of many virtues—of patient labour, of providence and self-denial, of all that is opposed to that torpor and recklessness which Virgil designates as the characteristics of barbarism.

“Nec componere opes norant, nec parcere parto”.

And the same qualities which thus enabled men to grow in wealth, also fitted them to use it. At such a period, the moral elements which bind society together, and without which it could not grow at all, are, generally speaking, in vigorous life. At such a time the gradual accretion of wealth is one of the appointed means of the development of human intelligence, and of its redemption from that slavery to the present hour which the extreme of penury enforces. It is then a beneficent influence in the growth of the arts which adorn life, and which, in their proper use and sphere, are designed to act, to some degree, as a charm against the coarser fascinations of sense. And now, if we are asked at what period in a nation's life the increase of riches ceases to be a good, and becomes an evil, we answer, it does not necessarily do so at any period. If we consider how far the great masses of men in any country, at any era, have been from having even their material, not to speak of their intellectual and moral wants, fully supplied, we will infer that no time has been seen on Earth in which, for wealth justly and honourably won, there may not be a laudable and beneficent use. But a period *does* come in the life of nations, when wealth becomes, certainly not a necessary evil, but an enormous temptation to evil. When the austere habits of an earlier time are forgotten—when wealth becomes, not the natural result of labour springing from duty, but an object passionately pursued as the means of personal enjoyment—then, in its acquisition and its use, it is the representative of corruption and the harbinger of decay. And why? Because its office has been perverted, and instead of being, as it was appointed to be, an agent in the emancipation of the human intelligence from the hard necessities of the body, it tends to make the soul the body's slave. So was it in old Persia, so in the empire of Rome. To the latter, indeed, the world has seen nothing comparable, either in the prodigious extent of its opu-



lence, or the scandalous oppression and rapacity with which it was amassed, or the purposes of nameless and transcending luxury to which it was devoted; the evil acquisition and the evil use being but the counterparts of one another. It was considerations such as these which inspired many thinkers with the belief that human society is formed to run for ever in a fatal circle, and that so surely as it is born and grows by means of sacrifice and virtue, so surely it is fated to perish at last by luxury and selfishness. This is the thought expressed in these despairing lines—

“There is the moral of all human tales,  
’T is the same sad rehearsal of the past:  
First freedom, and then glory. When that fails,  
Wealth, vice, corruption—barbarism at last;  
And history with all her volumes vast  
Hath but *one* page—”

And yet we profess ourselves entire disbelievers in this fatal theory, as much as in the opposite theory of fatalism, which holds that society is advancing certainly and necessarily upon a career of unbounded progress.

Our modern society has lasted too short a time,—scarcely a thousand years,—to enable us to presage its career or end; but we believe that the great moral antiseptic power which Christianity brought into the world will preserve the new civilization from perishing ignominiously like the old. These ideas, which it may be interesting to consider hereafter in detail, we now only glance at, and we close with the theme which we have endeavoured to pursue throughout, namely, that if society is thus to be preserved, it will be through no great collective achievement, but through an agency acting on that from which all good must spring, and to which all good should tend—the individual heart.

## II.

There are many to whom inquiries such as we are pursuing, inquiries as to the final causes of the world and society, seem to belong to the class of idle because unfathomable questions. They accept life and its phenomena as materials for science indeed to analyze, and for art to use and fashion according to its lights, as the working field of man, where his hand is to labour earnestly in whatsoever it finds to do, but of which the beginning and the end, the scheme and scope, are impenetrably dark. And yet surely the research after final causes is the most irrepressible instinct of our rational nature, which seeks not alone the knowledge of sequences or operative causes, but of a purpose and design, controlling all things, and consonant with our idea of in-



finite wisdom, justice, and benevolence. It is the province of philosophy to answer us when we ask not "how?" but "why?" and to ascend ever from minor and subordinate solutions to that from which all others are derived, to that "*sive finem sive extremum sive ultimum definimus, id quo omnia referrentur neque id ipsum usquam referretur*". It is easy to sneer at the word "Theodicea", but it is the goal of all true philosophy.

Setting out from the consideration of the relation of wealth to the good of society, we found ourselves obliged to consider the end for which society was ordained. We saw that end to be the noblest and highest conceivable, nothing less in its perfection than this, that it might in the best and truest way aid man—the individual—in attaining *his* perfection: the complete coöperation of his free will with the whole scheme and law of the universe, a coöperation based upon the widest possible knowledge of that law. This is the ideal, the possibility latent in every human creature, the "*ben dell' intelletto*"—the good of the rational soul, for the better attaining of which men were made social beings, and to assist him to that end has been ordained all the visible social fabric which we see around us—empires and laws, kings and pontiffs.

But now we have to descend from the contemplation of this magnificent ideal, and simply opening our eyes, to look upon mankind as they exist in reality and fact, and then endeavour, if we can, to point to some principle that will resolve an enigma so tremendous.

We suppose there are few of us who, when our early thoughts were first turned to consider social topics, were not filled with a strange despair in contemplating the phenomenon which the world presents in the mere matter of the external condition of mankind. Apart from minute statistics, out of place here, where our view is necessarily broad and general, it is a computation perhaps rather under than over the truth, to say that five-sixths of the population of the world belong to what are termed the labouring classes—to that class whose occupation is an almost unremitting bodily labour—whose subsistence is what we call the necessaries of life—whose intelligence is practically limited to the little sphere of their hamlet or township. Such, with exceptions comparatively few, are mankind; such is the average man. How different from the being upon whose mighty capabilities and glorious earthly destinies the worshippers of humanity delight to dwell! They form their ideal of man, the hero and the sage; but again we say, let us not shrink from the facts. Observe the city populations when some great occasion has called them abroad, or see the peasants in the fields, and behold

in the heavy features, where monotony of labour has produced a monotony of dull expression, pervading and transcending all varieties of race and climate, the representatives of the immense majority of our kind. Gradations exist, of course, between country and country, between era and era; but we speak of things in the mass—we speak of a phenomenon, true upon the whole, now as it was three thousand years ago—true of ancient Greece or Assyria as of modern England or China.

To a thinker of the ancient world this phenomenon would, we can well imagine, have presented little difficulty; he would have simply answered: This earth is made for the few; *mundus nascitur paucis*; it is the patrimony of the rich, the learned, and the wise. The poor, the slaves, the great mass of the community, are but the means to that end—the unsightly, if essential, foundation of the great edifice—the coarse and earthborn roots, whose office and end it is to produce and sustain the bright consummate flower of heroism and wisdom.

Nay, further, we will say that this idea and persuasion is one which never altogether dies in the hearts of the rich—the idea and persuasion, namely, that there is some intrinsic and essential difference between them and the poor—that their pursuits and pleasures, by reason of being theirs, form an end and object in the constitution of things, to which the poor were designed to minister.

This feeling, we say, is never altogether eradicated; it is the eternal temptation of the rich, as envy and discontent are the eternal temptation of the poor. And further we must confess we do not know of any answer which mere reasoning can give to it. The inequalities in the conditions of men, in all outward relations, in all the forms of power and enjoyment, are so much *the* striking phenomenon of this world, that we do not know how it could be shown that it is not an essential and intrinsic superiority given to one set of beings above another.

To combat that idea, we must, it is plain, go into another sphere, and draw from other sources. So immense is the change which Christian ideas have wrought in us, that that which would appear outside the circle of Christianity to be the expression of a simple fact, seems to us, and justly, an intolerable presumption, namely, to assert that any one human being was created merely for the sake of another, or that the honour or enjoyment of the highest upon Earth entered as an end into the design of the Creator, more than that of the poorest slave.

In seeking, then, to explain and justify the physical condition of the masses of mankind, we do not feel called upon to discuss the hypothesis that they are the appointed and predestined servants of a favoured few.

It may indeed be said, that there is in all such investigations an essential absurdity, and that we can do nothing more than accept the ordinances of nature as they are. It is capable of almost physical demonstration, that, so far as the world's products have hitherto existed in proportion to its population, the vast majority of men, in order to live at all, must be condemned to a life of labour and privation. Why not rest in the necessities of things? In some average condition or other men must exist. What right have we to say that that average shall be higher or lower, or that one condition is unsuitable rather than another? As the duration of men's lives is measured by decades, not centuries—as their average stature is under six feet, not over sixty, and we can see that all these things are in harmony with nature and with one another, but *cannot* see any reason why things should be made upon one scale rather than another; so it may be said, bodily labour and a restriction of the materials of enjoyment to the necessities of life, is the condition in which man is placed. If we can see no reason why it should be so rather than otherwise, we can also see no reason why it should be otherwise rather than so. It is simply to be accepted and acted upon.

Such is in substance the argument that runs through Pope's Essay on Man.

"Presumptuous man! the reason wouldst thou find  
Why formed so weak, so little, and so blind;  
First, if thou canst, the harder reason guess,  
Why formed no weaker, blinder, and no less".

Such reasoning is, no doubt, carried throughout the poem to lengths wholly unjustifiable; yet, if restricted merely to the question of man's situation in relation to external things, it would perhaps admit of no answer, if it were not that man has within him a deep instinct that his position is somehow out of harmony with his original nature. It is the irrepressible sense which he has of his intrinsic greatness and dignity which makes him conscious of a touch or note of discord in the actual ordinances of things. That to activity of some kind man was created is manifest, for it is the function of the will, in which the very crown of human nature resides; but that, gifted as he is with higher and lower organs, with those which ally him with the spirits, and those which he possesses in common with the brutes, he should be so placed that his intellectual faculties should, in the necessities of things, be all his life cramped and undeveloped, and that his lower functions should almost solely be exercised—this is the problem which weighs upon us.

We are not unaware that it has become rather a fashion of



late years to celebrate the greatness and intrinsic dignity of labour. Now, let us dwell as much as we please upon the results of labour—its necessity, its salutary uses; but, to speak of a life spent in the weary exertion of the muscles, as forming of itself a glorious and exalted destiny, is poetry, and modern poetry, not fact. Ask the working man himself after his day of toil—ask all true poets and thinkers, who have described the actual facts of life, and they paint to you labour as it is—wearisome—not pleasant, but grievous; endured, “*spe finis*”, in the hope of the repose to come.

What then are we to say?—that it is an expiation. Undoubtedly it is; but it is more—it has a value evidenced to us, not alone by faith, but by our own consciousness, by all our observation of the world and all our knowledge of its history. Labour is a discipline—the harsh medicine for a deep disease. Moral evil, as we have seen, is not anything existing in the nature of things, but is merely the determination of the free will of responsible beings to the lower good of sense rather than to the higher good of the intelligence. How it has come to pass that the will of man, whose object is the supreme good, should, in its actual condition, tend to rest in subordinate creatures as the supreme end of its being, faith alone explains; but the fact is as plain and undeniable as the existence of the globe itself.

Now, we say, this being so,—discarding all idle flattery of ourselves or our race—taking men as all experience, as the voice of our own hearts tells us that they are,—let us conceive for a moment what they would be if they were in the mass supplied, without effort and without stint, with the means of indulging each propensity as it arose. The original greatness of man is the measure of his capacity for evil. What spectacle can we candidly conceive the world would present, if men, with a will bent to evil, had unlimited leisure to conceive and means to execute it? Milton, speaking of the corruption of the world before the flood, says that the Earth bore “more than enough, that temperance might be tried”. And such has been the invariable experience of mankind ever since, that scarcely an example can be found of any body of men having the unconstrained command of the passive drugs of this world, that they did not abuse them.

In mercy, therefore, and as a benefit still more than as a chastisement, was that command denied to mankind in the mass. Next to freely doing right, the best thing is to do right by compulsion; and the ordinance which made man a serf of the glebe, and forced him, in order to live at all, to live by the labour of his body and the sweat of his face, not only rendered duty a

necessity, but rendered the free acceptance of that duty the means of the only happiness possible for him. It is the first condition of his upward progress. It remained for long centuries almost the only countervailing force to the disorders which overspread the world. We remember the description in Virgil of the Roman matron rising by night to her labours, kindling the expiring embers, and calling her handmaids to their labours, that she might preserve an honourable name, and bring up her dear children:

“—————quum femina primum,  
Cui tolerare colo vitam tenuique Minerva  
Impositum, cinerem et sopitos suscitât ignes,  
Noctem addens operi; famulasque ad lumina longo  
Exercet penso, castum ut servare cubile  
Conjugis, et possit parvos educere natos”.

How many virtues are here pourtrayed!—what patience and self-denial in the act! what excellence in the motive!—virtues in some shape sure of their reward. Thus, then, the life of toil to which man has been condemned, is not indeed his original or his best state, but it is his best relatively to his actual moral condition; and when we say that this condition of the human race is an unhappy one, we say so with great truth indeed in the sight of man's origin and capabilities, but we must add that it contains the germ of the only happiness possible for him.

If considerations such as these serve to explain and justify to us the condition of the great mass of mankind, we must not forget that there is a minority very differently circumstanced. Harsh as the terms may be which the Earth exacts as the conditions of her supply, she is not so niggard as merely to return to the labours of tillage the bare food of those who till. Over and above what is sufficient for the food of the husbandman, she yields, in the first place, sufficient to sustain another class of bodily labourers,—those, namely, who work with their hands in providing clothing and the means of habitation for the agriculturists and themselves. But, besides all this, she yields, in the majority of her soils, a large surplus, which, in the actual arrangements of society, becomes at the disposal of a minority rising in “columnar diminution” above the common level, and, as they rise, possessing ampler means of gratification, together with more abundant leisure and larger scope for the development of all their faculties. What then shall we say as to these, the select classes, and the end of their existence? Are we with the vulgar to rank them as the objects of peculiar favour; or, again, are we bound, in accordance with our own principles, to say, on the contrary, that they are the especial objects of disfavour, set

in the occasions, and endowed with the means of evil, from which necessity has restrained their fellows? In a measure we must say both these things. The more elevated classes are called to a post of greater danger, of greater responsibility and self-command. Their office is to be the mental workmen of the world.

There is an observation made long ago by an Italian writer, and often repeated since, which is worthy of our notice here. It is this—that the visible and external labours of man, wonderful as they seem and are—all that we dignify with the name of human creations—consist in this only, the separating or uniting of particles of matter. We can, by the action of our muscles, produce motion, and we can do literally nothing else. Whether we drop a seed into the earth, or fling a shuttle across the threads of the woof, or lay colours upon canvas, or hew marble from the quarry, or collect it in the palace, the actual thing we do is no more than the carrying certain particles of matter from one place and depositing them in another. The result is wholly independent of us; it flows directly from the powers of nature—that is to say, from the hand of God working through the laws which He has bestowed upon His creatures. And if these works of man were performed in obedience to mere instinct, they could assert for him no higher dignity than that of the ant or beaver. But beneath all man's visible operations lies his invisible work, the action of the intelligence, which originates, guides, determines all his outward labours. This is the spirit diffused through the globe, of which all that is done by man is but the imperfect expression.

Thus, then, the primary division of labour is into bodily and mental, and it brings with it the division of bodily and mental labourers. It is true that there is scarcely any bodily labour which does not involve some exertion of the intelligence, as, on the other hand (pure contemplation apart), the intellectual workman is rarely without some bodily exertion, however slight. But, on the whole, the functions are distinct; and, on the large scale, their union in the same persons would be simply impossible. For, in addition to the prolonged education and ample leisure required for the cultivation and use of the intellect, it is true that continued and monotonous bodily exertion creates of itself both a distaste and an unfitness for mental labour. It is a common experience that mind and body cannot be both worked in a high degree at the same time.<sup>3</sup>

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<sup>3</sup>This is very well expressed in a late work of fiction of Mr. Hawthorne's, which takes for its basis one of the attempts which have been made in America



All that is done in the world is wrought by the hands of men, but the active hand obeys the thinking head. In planning and directing labour, and in superintending the distribution of its produce, and in doing this in all senses, lies the function of the minority. That those who think must govern those who toil, is a constitutional law deeper than all codes, and defying all revolutions to alter. Every society must be governed by this "natural aristocracy".<sup>4</sup>

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to realize some of the socialist theories. The conception was, that all the members taking part in the Utopia should be bodily as well as intellectual labourers. Thought and poetry, and the refining influences of literature, were to go hand in hand with field-work or handicraft. The result, however, was far from answering their anticipations. \* \* \* "The clods of earth", says the writer, "which we turned over and over, were never etherealized into thought. Our thoughts, on the contrary, were fast becoming cloddish; our labour symbolized nothing, and left us mentally sluggish in the dusk of the evening. Intellectual activity is incompatible with any large amount of bodily exercise. The yeoman and scholar—the yeoman and man of finest moral cultivation—though not the man of sturdiest sense and integrity, are two distinct individuals, and can never be welded into one substance".

<sup>4</sup> "A true natural aristocracy is not a separate interest in the state, or separable from it. It is an essential integral part of any large body rightly constituted. It is formed out of a class of legitimate presumptions, which, taken as generalities, must be admitted for actual truths. To be bred in a place of estimation; to see nothing low and sordid from one's infancy; to be taught to respect one's self; to be habituated to the censorial inspection of the public eye; to look early to public opinion; to stand upon such elevated ground as to be enabled to take a large view of the wide-spread and infinitely diversified combinations of men and affairs in a large society; to have leisure to read, to reflect, to converse; to be enabled to draw the court and attention of the wise and learned wherever they are to be found;—to be habituated in armies to command and to obey; to be taught to despise danger in the pursuit of honour and duty; to be formed to the greatest degree of vigilance, foresight, and circumspection, in a state of things in which no fault is committed with impunity, and the slightest mistakes draw on the most ruinous consequences—to be led to a guarded and regulated conduct, from a sense that you are considered as an instructor of your fellow-citizens in their highest concerns, and that you act as a reconciler between God and man—to be employed as an administrator of law and justice, and to be thereby amongst the first benefactors to mankind—to be a professor of high science, or of liberal and ingenious art—to be amongst rich traders, who from their success are presumed to have sharp and vigorous understandings, and to possess the virtues of diligence, order, constancy, and regularity, and to have cultivated an habitual regard to commutative justice—these are the circumstances of men, that form what I should call a *natural aristocracy*, without which there is no nation.

"The state of civil society, which necessarily generates this aristocracy, is a state of nature; and much more truly so than a savage and incoherent mode of life. For man is by nature reasonable; and he is never perfectly in his natural state, but when he is placed where reason may be best cultivated, and most predominates. *Art is man's nature*. We are as much, at least, in a state of nature in formed manhood, as in immature and helpless infancy. Men, qualified in the manner I have just described, form in nature, as she operates in the common modification of society, the leading, guiding, and governing part. It is the soul to the body, without which the man does not exist. To give therefore no more importance, in the social order, to such descriptions of men, than that of so many units, is a horrible usurpation".—*Burke*.

This being so, we perceive at once the necessity for the existence of a class in the community exempt from the ordinary lot of physical toil. To discuss the nature and origin of property in relation to justice and natural law, does not enter into our present purpose, which deals with ends and utilities; but it is clear that it is by means of the institution of property that the continuance of such a class is secured.

But here it may be objected—and this is one of the points most earnestly urged by M. Proudhon—it is not so much with the higher work as with the inordinate wages of the superior class that we quarrel. Granting that you are to have persons devoted to mental occupations, are these teachers and commanders of mankind therefore entitled to richer fare and costlier raiment than their fellows? If their occupation be of a higher grade, why not let it be its own reward? Why should the fact of being set apart for an immaterial work be the reason for larger material enjoyment? Upon this subject we may make two observations:—

First,—If the minority be, as they are, the appointed governors and rulers of the masses, then, physically and numerically weak as they are, the preservation of their position absolutely depends upon the respect paid to them by those whom they rule. Now, of course it would be an absurd as well as low estimate of human nature to say that the respect paid by the majority to the minority depends entirely upon the outward show made by the latter. No one overlooks the influences of loyalty, of religion, of deference for personal character; but still it must be insisted that external advantages form an element, and a considerable one, in such submission. How long could the governing classes hope to preserve control over the multitude, if, in all matters of appearance, no difference existed between them? No doubt in the rare cases, where personal qualifications are of an eminently high and striking kind, this observation may have little weight. A saint may be all the more honoured in his rags. A consummate general, known by his soldiers to be such, may even gain increased respect by sharing their rations and drilling them in his shirt sleeves. But in the mediocrity, both of virtue and talent, which men in the average present, all government, all subordination, would be practically impossible, and the thinking or governing class trampled down with contempt, if they had no means of inspiring respect but an appeal to their intrinsic superiority.

Secondly,—These governing classes are not, or at least ought not to be, and cannot long continue to be, in the nature of a *caste*. On the contrary, their ranks must be, and in fact are,

perpetually filled up and recruited from the great body of the community. Now, to gain recruits, you must allure them. If, therefore, it be essential that there should be motives sufficient to induce certain individuals amongst the labouring class to make that amount of exertion which would enable them or enable their children to step from the ranks of the bodily into the ranks of the mental labourers, it is equally essential, that these motives should be of that plain, strong, and effective character which would act upon man in his actual constitution. And such an incentive is found in the superior physical condition which is thus to be attained.

No one, we trust, will imagine, that these observations are in the nature of arguments in favour of retaining any particular social arrangement; on the contrary, our position is, that these social laws are fundamental and unalterable, fixed not by men, but by a power above them; and the considerations we have been developing are to the end, that we may not only accept them as inevitable, but acquiesce in them as just. Upon this ground then do we stand. To clear away from before our eyes those shadowy, but in their tendency very mischievous speculations, which tempt us to make of man's social organization something greater than man himself, is the first requisite to the formation of a right judgment upon what does or does not contribute to human good. And next to that, is the clear apprehension of what that good is, namely, in the highest sense the perception of truth by the intelligence, and the pursuit of it by the will. And further, that the actual constitution of human society, of whatever improvements in detail it may be susceptible, or whatever gradual amelioration may be hoped for, is upon the whole wisely and justly framed to secure that end.

There is a considerable body of speculators, to whom all these views of ours seem utterly false and hateful. These thinkers regard human society, in all its parts, as being the work of man alone, as made by him, and therefore to be re-made by him. And further, they assail the actual constitution of society, as fundamentally unjust and oppressive, and demand that it should be taken to pieces and constructed anew upon a fairer basis. This is the school of the socialists, to some of whose writings we shall next direct our attention.



ART. III.—*Celtic Studies*. By HERMANN EBEL. *Translated from the German; with an Introduction on the Nature, Formation, and Classification of Stems, with examples from the Greek, Latin, and Gothic*. By WILLIAM K. SULLIVAN.

[Comparative Philology, although but a creation of the present century, has had, like all branches of human knowledge, its period of conjecture and empiricism. The collection of facts is a work of time and labour; until there is an abundance of facts, there can be no hypotheses founded on strict inductive reasoning to account for phenomena, and loose conjectures and fanciful speculations occupy their place. But no hypothesis, however correctly established, can be wholly true; the proportion of error in it will, among other things, depend on the state of development of the science, and on the greater or lesser generality of the hypothesis itself—that is, on the greater or lesser number of phenomena embraced by it. To object, then, to a science because its hypotheses are rapidly changed, or because in its infancy an illegitimate use may have been made of its methods, is to mistake the scaffolding by means of which an edifice is erected for the permanent structure itself. If a little more attention were bestowed upon the historical development of different branches of science, this mistake would not be so frequently made. We should then learn what a large amount of scaffolding and useless materials are cast aside in the course of a single century's growth—scaffolding and materials which may perhaps have formed the sole subject of that century's intellectual strife.

Now the instrument of research, so to say, in scientific philology is the system of letter-changes, the true laws of which are only very gradually being established upon a correct basis. As in every other science, this instrument has not always been employed properly, nay, its use has led occasionally to results quite as ludicrous as any ever obtained by the old method of guessing at the relations of languages from the accidental resemblance which words may offer when placed at random in parallel columns. Surely it would be more than unreasonable to condemn an instrument because it had occasionally been unskilfully used. In the hands of Bopp, and of his school, this instrument, judiciously used, has raised Comparative Philology to the rank of a true inductive science. One of its greatest triumphs has undoubtedly been the *Grammatica Celtica* of Zeuss, of which an interesting account has been published by the distinguished Irish scholar, Dr. O'Donovan, from whom we may soon expect a translation of the whole work. Before the publication of this great work, a monument at once of its author's genius and labour, several of the most distinguished Continental scholars, among whom may be specially mentioned, Pictet, Bopp, and Diefenbach, had written valuable works on Celtic Philology. But with the appearance of Zeuss' work, a new era may be said to have commenced for Celtic Philology. The Classic languages, Sanskrit, and Gothic, with the derivatives of the latter, the large family of Germanic languages, upon the analysis of which the laws of the science were built, were so gleaned by bands of ardent scholars, that a fresh field in Indo-European Philology was to them what a new gold field would be to gold diggers.

Of the many who have begun to cultivate this Celtic field, there is one who bids fair to rival Zeuss himself. In the remarkable "*Celtic studies*" of Hermann Ebel, published in the *Beiträge zur vergleichenden Sprachforschung auf dem Gebiete der Arischen, Celtischen und Slawischen Sprachen*, hrsg. von A. Kuhn und A. Schleicher, we have one of the best examples of strict inductive Philology which has ever emanated from the Boppian School. Irish scholars, with very few exceptions, have not hitherto done anything in Comparative Philology. This is by no means to be regretted in the case of those who have heretofore devoted themselves to the study of the ancient language, literature, and historical monuments of Ireland, because, had the object of their labours been the mere abstract study of the Irish language, we should perhaps not have obtained the

great results in a national point of view which those labours have yielded. There is, perhaps, no country in Europe, in which, in the same space of time and under a similar amount of difficulty, so much has been done, in about twenty-five or thirty years, for the collection, preservation, and publication of the records of its ancient history, than in Ireland. So also it would be difficult to rival, in patient and conscientious work and solid learning, such men as Petrie, Curry, O'Donovan, Todd, Graves, and Reeves,—to speak only of those who have occupied themselves with the earlier periods of Irish History and Archæology. I believe that the period has now, however, arrived, when the cultivation of Comparative Philology would confer important advantages upon Irish Literature, and very greatly facilitate the study of the ancient MSS. With the double object of placing the investigations of Ebel within the reach of such Irish scholars as may not be acquainted with the German original, and of holding out an inducement to some of our own young scholars to enter, and earn for themselves a name, in a field of study which is so peculiarly their own, and for the cultivation of which they possess so many advantages, I have ventured to make a translation of the chief paper, namely, that "On Declension in Irish", and of three of the shorter ones, which are necessary supplements to that paper.

On completing the translation, I found, however, that without some explanation of the peculiar method of grammatical analysis followed by German philologists, it would be wholly unintelligible except to a very few persons. I thus ran the risk of missing my main object, namely, of stimulating some young Irish scholars, who may chance to meet with these pages, to study the method of the Boppian School. Under these circumstances I had no alternative but to prepare an explanatory introduction,—to venture in fact upon the hazardous undertaking of becoming, without any special qualifications, the interpreter of the German School of Philology. For any shortcomings in this introduction, I can only then plead its object and the circumstances under which it was written.

At first I proposed to explain the difference between Roots and Stems,—the Formation of the Stems and their Classification,—the difference between Stem-formation and Derivation,—and lastly, the primitive forms of the Case Endings in the several Indo-European languages. The length to which the first part ran, that which I deemed the part most requiring explanation, prevented me from adding anything upon the case endings.

As the Classic languages, the Sanskrit, and the Gothic, were the languages which served as the foundation of the science, I determined to take my examples from all of those languages as were available to me, namely, Greek, Latin, and Gothic.

It seems almost unnecessary to add that such an Introduction, from its nature and object, could only be a mere compilation from the works of those scholars who are considered to be masters in the science. I have been especially careful to avoid introducing any examples of my own, except where I could not find a suitable one in any available work of authority. Beyond the mere form, therefore, but very little belongs to me. The chief works from which I have derived my materials were: Bopp's *Vergleichende Grammatik*; Grimm's *Geschichte der deutschen Sprache*; Curtius, *Die Bildung der Tempora und Modi*; Heyse's *System der Sprachwissenschaft*; but especially from the two latter. I have also occasionally derived assistance from Buttman's Greek Grammar, Krüger's Latin Grammar, and the works of Ahrens, Düntzer, etc.

Ebel's papers may be looked upon as emendations and extensions of Zeuss' Grammar, and his materials are almost altogether those which that work furnishes. To understand his papers at all, the reader must be acquainted with what Zeuss has done on the subject. As his book is one likely to be found only in the hands of very few persons, I have given, as an appendix, a translation of the portion of the chapter in the first volume of Zeuss to which the papers of Ebel here translated refer; the shorter passages referred to by Dr. Ebel have likewise been translated, and put among the foot-notes. In the translations the author's notes may be distinguished from the editorial notes by the latter being enclosed in brackets. The whole may be considered to form a more or less complete treatise on Irish declension, from the point of view of comparative philology.



The following is the order of arrangement of the several parts :

- I. Introduction—On the Nature, Formation, and Classification of Stems, with examples from the Greek, Latin, and Gothic, p. 51.
- II. Celtic Studies (translated from the German of H. Ebel) :
  1. On Declension in Irish, p. 79.
  2. On the Article in modern Irish, p. 107.
  3. On the so-called Prosthetic *N*, p. 108.
  4. Additions to the article on Declension, p. 111.
- III. Appendix.—Translation of the second chapter of Zeuss' *Grammatica Celtica*, concerning the Inflexions of the Noun in Irish, p. 113.]

## I. Introduction.

ON THE NATURE, FORMATION, AND CLASSIFICATION OF STEMS, WITH EXAMPLES FROM THE GREEK, LATIN, AND GOTHIC.

### §. 1.

THE method of investigation employed in the modern science of Comparative Etymology may be described as an analytic process, to which the words of cognate languages are subjected; consisting in successively stripping from them certain letters or syllables which have the symbolical power of expressing the qualities, proportions, or relations in space and time, under which the subject contemplates the object—that is, so much of the phonetic whole constituting the word, as fixes or limits the idea intended to be expressed by it, and makes it the symbol of a definite conception. By this stripping process we obtain a residual syllable or nucleus to which the term *Root* is given. A large number of different words, not only in the same language, but in several languages, subjected to this kind of analysis, may leave the same syllable or root; hence we may consider the *Root* of a series of words as a phonetic symbol of an individual but logically indefinite idea, the limitation or logical definition of the idea being given by the sounds or syllables stripped off. The assumption of such nuclei in words pre-supposes that the formative process or growth of languages was a synthesis, the reverse of our analysis; or, in other terms, that the first symbols of ideas in a language were *Roots*, out of which were elaborated the more developed languages.

Roots form the common element of the languages comprised in a family. Their number in any one family is comparatively small; and all of them are not found in any one language, or in an equal state of purity. The latter is especially the case in modern languages, which have all become more or less disturbed and mutilated by rubbing off the grammatical endings; hence, in most cases, we rarely get the true *Root*, we only get root-forms,—and from these the primitive form and signification of the root must be inductively established, not, however, by the study of one language, but by that of a whole family, the different lan-



guages of which complement each other. The object of this kind of analysis is not merely the discovery of the primitive forms of the roots; it also includes that of the grammatical elements themselves which are stripped off the roots. Comparative Etymology may, consequently, be considered as a species of Palaeography which has for its object the determination, from their mutilated relics, of the primitive organic forms of a language,—of that of the parent language of a family of languages,—and, ultimately, of the parent language of all; exactly as the object of Palaeontology is to reconstruct from the bones, shells, etc., the forms which extinct animals had when living.

It is obvious from what has been said that it is erroneous to speak of English Roots or Latin Roots; we can only speak of Indo-European Roots, etc. It will also be obvious that languages which can be analyzed in this way cannot contain uncombined roots. In process of time, however, and especially if great perturbations and mixtures of different peoples take place, the grammatical elements affixed to the roots get shortened, mutilated, or drop off wholly, so that the root is laid bare. In modern languages, as, for example, the English, we find several naked roots, which, however, have the value of the words from which they have been obtained by the gradual wearing off of the clothing; thus the word *hand* is in reality a root-form, having now the full signification of a primitive noun, which in Gothic had the form *handus*.

## §. 2.

Leaving out of consideration interjections, we may classify the different kinds of words of which rational speech is composed according to the following scheme, which is that usually followed by grammarians:—

### Corporal Words.

### Formational Words.

## I. SUBSTANTIVES.

Noun-substantives  
(nouns).

Pronominal substantives (pronouns, *I, thou, he, she, it, who*, etc.)

## II. ATTRIBUTIVES.

### A. Words defining the subject—Predicate words.

#### a. ADJECTIVES.

a. Qualitative adjectives.

b. 1 Quantitative adjectives or numerals.

2 Pronominal adjectives  
(*mine, thine, this*, etc.)

3 Articles.

#### β. VERBS.

a. Concrete verbs (*to love*).

b. Abstract verbs (*to be*).

## Corporal Words.

## Formational Words.

## B. Words defining the predicate—Adverbs.

- a. Qualitative adverbs  
(derived from adjectives).

- b. Adverbs of time, place, number, etc.

## III. PARTICLES.

## A. Prepositions.

## B. Conjunctions.

This arrangement renders the distinction between the words which constitute the materials of speech, and those which express the varying relations of space, number, time, etc., very evident. And as the words of each class may be subjected to the process of analysis, we get two kinds of roots, distinguished also as *corporal*, and *formal* or *formational Roots*. As we may get the same root from a noun, an adjective, a verb, or an adverb, a corporal root must be considered to have the symbolic power of a whole sentence; that is, of expressing a whole concrete occurrence, but without possessing any contrivance for expressing the person, time, etc. Corporal roots may therefore be considered as foundations for nouns and verbs, rather than as possessing the symbolic power of either.

Assuming that language was synthetically developed from isolated monosyllabic roots, we have next to consider how words were formed from roots. The formation of words from roots is called *derivation*, but the pure words thus formed must undergo further modification, in order to express the varying relations of speech. Thus, a Verb must have special contrivances to express time, person, etc.; and the Noun, number and case, etc. This further modification is called *flexion*, or *word-bending*. The processes by which Derivation and Flexion are effected are fundamentally the same; they are—

1. Internal phonetic change, which can only affect the root-vowel, as the change of a consonant would necessarily produce a change in the symbolic value of the root.
2. Addition of phonetic material to the root, which may be of two kinds:
  - a. Such as spring from the root itself; or Duplication.
  - b. Affixes; which may be Prefixes or Suffixes, but especially the latter. These Affixes may be:
    - a. Single sounds or syllables, which only occur as formational elements of words, or word-forms, and which of themselves have no signification in the fully-formed language, and do not consequently occur isolated in it.
    - β. Affixes which possess of themselves a distinct meaning, and consequently may occur as isolated words in the language.

In the Semitic languages, vowel-change is a predominant mode of word-formation and word-flexion. In the Indo-European languages it only appears as *ablaut*;<sup>1</sup> that is, an interchange of the primitive pure short vowels, *a*, *i*, *u*, but, at a later period, of the newer vowels *e* and *o* also, which were produced by the softening of the primitive vowels. This kind of vocalic change (*ablaut*) appears to have been a fundamental agency of word-formation in the Germanic languages. The vowel-change known as *umlaut* is the change of the pure fundamental vowels *a*, *o*, *u*, into the impure or obscured vowels *ä*, *ö*, *ü*. This obscuration of the pure root-vowel took place originally by the influence of an *i* in the syllable immediately following the root. Later, when the *i* was softened to *e*, the latter also acquired the power of *umlaut*. This kind of change, as distinct from *ablaut*, was, perhaps, primitively only a mere phonetic process, which subsequently acquired grammatical and etymological signification. Phonetic change, by means of affixes, is the great agent in word-forming in the Indo-European languages.

The first kind of affixes are those employed in derivation properly so called, and in inflexion. The second kind of affixes—that is, those which possess of themselves a distinct meaning—are used in making compound words. Some of the derivational affixes may, however, be distinctly traced to selfstanding words—such, for example, as the English suffixes *by*, *hood*, *ship*, *some*. Indeed, the distinction between derivation and composition cannot be accurately defined; practically, however, it exists in fully formed languages.

If some derivational affixes can be derived from significant words, it is perfectly reasonable that philologists should endeavour to generalize the fact, and assume as probable that all derivational and flexional affixes, which possess the symbolic signification of formational words, were originally formed by affixing such words to the word to be inflected. In modern languages where those flexional endings have been rubbed off, their functions are performed by words already existing in the language. Such a view naturally leads to the assumption that in the gradual development of languages all word-formation and flexion were synthesis or composition.

<sup>1</sup> Wherever special technical terms are invented in any language to express certain definite ideas, they should be retained in translating from that language, if the laws of euphony of the language into which the translation is made at all admit of it. The words *ablaut*, *umlaut*, *vorlaut*, *nachlaut*, *anlaut*, *inlaut*, and *auslaut* are convenient terms, and better than any which could be made out of Greek words. I have consequently used them throughout. *Ablaut*, *umlaut*, *vorlaut*, and *nachlaut* are fully explained where they first occur. *Anlaut* is the initial sound, and *auslaut* is the final sound of a word.



We may assume three stages of composition: 1, Parathesis, or the mere juxtaposition of roots; 2, Agglutination; 3, Amalgamation.

*Parathesis.* A language at this stage would consist of monosyllabic roots simply, the grammatical relations being expressed by juxtaposition with other roots. The same root, according to its position in a sentence, may perform the function of a noun, an adjective, verb, etc. Pott calls such languages, of which the Chinese affords an example, *Isolating languages*.

*Agglutination.* In this stage the grammatical relations—mood, tense, person, and class of verbs, number, cases, etc., of nouns, are expressed by affixes to monosyllabic roots, which, though invariable in function, are not inseparable from the root, each relation being expressed by a successively added affix. In thoroughly agglutinating languages all the affixes are suffixes, and the root-vowel is itself inflexible, but modifies that of the suffix, giving rise to the remarkable law of vocal harmony, which exists in the Finno-Tatarian languages. The Semitic languages show a higher stage of agglutination by admitting of prefixes as well as suffixes, the cases of nouns being formed by prefixing prepositions, and still more by employing a change of root-vowel for inflexion.<sup>2</sup>

*Amalgamation.* When the corporal and formational elements become so intimately blended that both fuse into an indissoluble unity, the formational elements produce true flexion, which establishes a complete logical separation of the grammatical categories. Languages at this stage are called by Pott, *Amalgamating*.

Bopp's classification is somewhat different. He makes three classes also, the first corresponding to the parathetical; but in the second he includes both agglutinating and amalgamating, and makes of the Semitic languages a third distinct class.

The hypothesis that derivation and flexion were primitively synthesis, and that the phonetic additions by which they are affected were at first selfstanding words, constitutes the basis of what is known as the agglutination theory. This theory is now generally considered to be the correct one. Some philologists seem disposed, however, to modify it so far as to admit two kinds of affixed flexional materials: 1, Simple sounds or syllables, which were never selfstanding words, their symbolic power

<sup>2</sup> Some examples illustrative of the process of agglutination in the Northern Family of languages may be found at pp. 92 and 94, vol. I., of the *ATLANTIS*, in the first part of my paper "On the influence which the Physical Geography, the Animal and Vegetable Productions, etc., of different regions exert upon the Languages, Mythology, and early Literature of Mankind, etc."

being derived from that which each individual letter is considered to inherently possess; 2, selfstanding words polished into derivational and flexional elements.

### §. 3.

In the foregoing section I have mentioned three kinds of phonetic forms: 1, roots; 2, simple word-forms; and 3, words clothed with the inflexional elements, which express their relations to each other as members of a sentence. But these do not include every form. The simple word-forms are not as a rule obtained by the direct addition of a grammatical element, derivational or flexional, to the root. Between the root and the grammatically complete word there lies the *word-stem*, upon which, and not upon the root itself, the grammatical elements affix themselves. Stem-formation is, consequently, the first stage of word-formation, a stem is not a root, nor yet a complete word. From the root it is logically distinguished in this, that the unlimited, or, as we might say fluid, symbolic contents of the root are fixed or solidified, and rendered fit to serve as a basis for the symbol of the completely determinate conception represented by the grammatical word. While there are but two classes of Roots, corporal and formational, there may be many kinds of Stems: for example, we may have verbal, nominal, pronominal, and particle Stems. Instead, then, of three categories of phonetic forms, we have, in reality, four: Roots, Stems, Simple word-forms, and Words clothed with inflexional elements.

A Stem becomes a Word by giving to it the characteristic sign of a definite word, which is phonetically done:—

1. Internally, by a change of the root-vowel.
2. Externally, by the addition of phonetic material, which may be: vocalic, consonantal, or syllabic.

That is apparently by the very same means by which derivation is effected; indeed, the phonetic means by which the two processes of Stem-formation and Derivation are effected cannot be absolutely distinguished, the same phonetic change or addition being at one time stem-formation, and at another true derivation. There is, however, an essential difference between stems and derivatives, the basis of the stem is the root, while the derivative always proceeds from the stem. The two processes are, therefore, logically as well as phonetically distinct.

### §. 4.

Before proceeding to describe in some detail the various methods by which stems may be formed from roots, I must first notice two changes which the root may suffer, without giving

rise either to stem-formation, derivation, or flexion. The first is *root-variation*, which may be described as a phonetic change that modifies or tempers more or less the symbolic value of the root, without the latter ceasing to be a root. The result of this variation is to produce in the same language, or in cognate branches of the same family of languages, two or more affiliated roots with almost synonymous signification, but differing in a slight degree phonetically. These synonymous roots may appear to have been evolved, as it were, parallel to one another, or the one to be primary, and the other secondary. Of two such synonymous roots we may consider the one which has the greatest phonetic dimensions to be the secondary root. It is even reasonable to generalize this hypothesis, and to assume all roots of considerable phonetic dimensions to be secondary roots, even where we can no longer detect the primitive root. This kind of variation takes place either: 1, by simple modification of one or more letters—vowels or consonants—*e.g.* γλαφ, γραφ, *grab*; or 2, by the addition of a sound or sounds—*e.g.* Latin *trah*, Greek τρεχ (τρέχειν), Gothic *thrak*, German *trank*, English *drank*. The letter added in the examples of the second mode is *n*, and by its addition the original idea symbolized by *thrak*, which may be verbally expressed by *to draw*, is tempered, or modified so as to express *to draw into*, that is, *to drink*.<sup>2bis</sup> In the change of the root into a stem there is no such modification of the root-idea, but only a mere solidification of its fluid contents.

Root-variation is to be carefully distinguished from the second phonetic change which the root may undergo without ceasing to be a root—namely, the remarkable historical transposition of sounds (*lautverschiebung*), schematized by J. Grimm, according to which the mute consonants appear, in passing from the Greek or Latin to the Gothic, and thence to the Old High German, to be shifted forward in the direction in which the sounds are naturally developed—that is, the labial, dental, and palatal medials pass into the corresponding tenues, and the latter into the aspirates—thus the Greek medial *b* is represented by the Gothic tenuis *p* and by the O. H. German aspirate *ph* or *f*; the Greek *p* by Gothic *f* and the O. H. German *b*, etc.; the Greek dental medial *d* by the Gothic tenuis *t* and the O. H. German aspirate *th*; the Greek medial *g*, by the Gothic tenuis *k*, and the O. H. German aspirate *kh*, *e.g.*: Greek ποῦς, gen. ποδός, Gothic *fōtus*, O. H. German *vuoz*; δακρυ, Gothic *tagr*, O. H. German *zahar* (the sibilant *z* for the aspirate *th*); Latin *gelidus*, Gothic *kalds*, O. H. German *chalt*, etc.<sup>2 bis</sup>

<sup>2bis</sup>. I do not profess, in this introduction, to discuss the value of particular laws, my object being merely to explain the nature of stems. I am aware that some of the examples given above are not strictly in harmony with Benary's



## §. 5.

The Phonetic methods of Stem-formation may now be described in detail; they are:—

I. *Modification of root-vowel:*

- a. Ablaut proper, which is a very frequent change in the Greek; it is rather an accompaniment than a means of stem-formation. It does not occur in the Latin, but in the Germanic languages it is very common, and was apparently the primitive means of stem-formation. Examples: root *brach*, stems *brich*, *bruch*; ἔ-βαλ-ον, βολ-ή, βέλ-ος.
- b. Obscuration of the root-vowels *a* and *i* to *e*, and of *u* to *o*, a change which is assumed to have taken place in all Greek, Latin, and German stems which have short *e* or *o*, e.g.: root *lig* or *lag*—λέγω, *lego*; root *rig*—rego, *recht*; root *vul* (*vult*)—volo, etc.
- c. Strengthening of the root-vowel, which may take place:
  - a. By lengthening the short vowel, as: root λαθ, λίθω, Doric λᾱθω.
  - β. Guna-tion<sup>3</sup> and Diphthongation—Examples of guna-tion: root ι, εἶμι, root φυγ, φεύγω; in Gothic, root *bug*, *baug*, root *vit*, *vait*. Examples of Diphthongation: root φαν, φαίνω; δα, δαίω. The latter and similar roots ending in a vowel show the true relation of the *i* to the root-vowel in φαίνω. Curtius has shown that in the latter the form was φαν-ι-ω, a derivational *i* (Sanskrit *ya*), being originally placed after the root, but which by metathesis afterwards entered the root. Guna-tion, according to some scholars, does not occur in the Latin, and consequently the derivational *i* retains its place outside the root in the verbs in *io* of the third conjugation, as *capiō*, *moriōr*, etc. This opinion is not, however, strictly correct; for although guna-tion may be rare, the following examples show that it does sometimes occur: *foedus* for *foidus* (if we may connect πῆ-ποιθ-α), root *fid*, πιθ, bi(n)d; *aurum*, *aurora*, compare *uro*, *us-tum*, Sanskrit root *ush*. The occurrence of this derivational *i* as an element of stem-formation gives rise to a distinct and important class of stems,

law; I did not, however, think of any less objectionable. But the same objection may be urged against Grimm's law of *lautverschiebung*, to which, in other respects, there are many exceptions. I have endeavoured to state below Grimm's law as simply as possible, but, of course, the form in which I have given it is not wholly unobjectionable.

<sup>3</sup> The term guna-tion is applied to the process by which *é* (*ai*) is produced by prefixing *ā* to *i* or *i*, or *ō* by prefixing *ā* to *u* or *ū*. Diphthongation and guna-tion are well expressed by the German terms *nachlaut* and *vorlaut*.

which will be fully discussed further on in the section on *ya-* or *ia-* stems.

## II. Consonantal strengthening of the root:

### 1. Duplication or doubling of the final consonant:

In the Greek  $\lambda\lambda$ , dialectically  $\rho\rho$  and  $\nu\nu$ ;  $\sigma\sigma$  (Bœot.), permutated in the new Attic to  $\tau\tau$ . In the Latin there is frequent duplication of *l*, and in the German of *l* and *m*. In the former case it is the result of the assimilation of a derivational *y* by the final consonant.

### 2. Affixation of a mute consonant foreign to the root. In the Greek and Latin a $\tau$ is thus affixed frequently, e.g., $\beta\lambda\acute{\alpha}\pi\tau\omega$ ( $\beta\lambda\acute{\alpha}\beta\eta$ ), *pecto*.<sup>4</sup> In the Germanic languages this process is not now recognizable.

### 3. Affixation or intercalation of a nasal:

a. Nasalizing an internal vowel. This change is common in the Latin—e.g.: *pango*; it also occurs in the Modern German; Old High German *hāhen*, thence New High German *hangen*.

#### b. Affixation of the nasal in the auslaut:

a. After vowels. In the Greek we get from  $\tau\alpha$ ,  $\gamma\alpha$ ,  $\tau\alpha\nu$ ,  $\tau\epsilon\nu$ ,  $\gamma\epsilon\nu$ . It is sometimes combined with diphthongation, as in  $\beta\alpha\acute{\iota}\nu\omega$ . In the German we have *ga* becoming *gan*, and *gang*.

$\beta$ . After consonants. Only few examples in the Greek; e.g.,  $\tau\acute{\epsilon}\mu\nu\omega$ . In the Latin we have *sterno*, *sperno*, etc.

c. Affixation of a whole syllable, accompanied by nasalization, of which we can only find examples in the Greek:  $\nu\epsilon$ ,  $\nu\alpha$ — $\kappa\nu\acute{\nu}\epsilon\omega$ ,  $\delta\alpha\mu\nu\acute{\alpha}\omega$ ; as  $\alpha\nu$ , by which the root-vowel becomes likewise nasalized: root  $\lambda\alpha\theta$ — $\lambda\alpha\nu$ - $\theta\acute{\alpha}\nu\omega$ .

### 4. Reduplication; as, for instance, $\mu\acute{\iota}\mu\omega$ for $\mu\acute{\iota}\mu\acute{\epsilon}\nu\omega$ .

All the more important methods of stem-formation are embraced under the preceding categories. There are, however, a few exceptional cases, such as where an intensive *s* is introduced into the root, as: root  $\mu\iota\gamma$ — $\mu\acute{\iota}\sigma\gamma\omega$ , Latin, *misceo* (compare Ir. *cummasc*, commixtio), which must not be confounded with the derivational *sc* of inchoative verbs. It may be well to observe here, that the circumstance of stems being formed by the addition of a whole syllable, the introduction of an intensive *s* into the body of the root, etc., shows us how cautious we should be in concluding that stem-forms, which at first sight appear extremely simple, are the roots themselves. For example,  $\phi\alpha\nu$  and  $\kappa\rho\iota\nu$ , although apparently forms of very moderate phonetic dimensions, have been,

<sup>4</sup> The Greek  $\kappa\tau\epsilon\acute{\iota}\varsigma$  suggests that the *ct* of *pecto* may be radical.

in reality, enlarged from  $\phi\alpha$  and  $\kappa\rho\iota$ . Then again, it is necessary to be careful to distinguish between the stem and the pure words or stem-words. For example,  $\xi\pi\omicron\varsigma$  and *corpus* are true stems, as is shown by attaching flexional elements to them; thus,  $\xi\pi\epsilon\sigma\text{-}\omicron\varsigma$  contracted to  $\xi\pi\epsilon\omicron\varsigma$ , *corpus-is* softened to *corpor-is*. On the other hand,  $\phi\iota\lambda\acute{\epsilon}(\omega)$ ,  $\lambda\acute{o}\gamma\omicron(\varsigma)$ , *fructu(s)*, are full words, containing the derivational elements,  $\omega$ ,  $\varsigma$ ,  $s$ , respectively.

### §. 6.

The formation of stems may be considered the first separation of words into grammatical categories, but it does not complete it; for although some stems are essentially verbal, and others nominal, there are many which admit of being made the basis either of verbs or of nouns. The complete separation is only effected when the sign which characterizes the complete word is affixed to the stem. These grammatical signs are the derivational and inflexional elements.

The characteristic signs by which the stem becomes a verb, are the personal endings; those by which the noun is formed, the gender and case endings. As Dr. Ebel's paper does not deal with the verb, I shall confine myself entirely to nouns and adjectives. The vocative, from its nature, ought to present us with the pure nominal stem, but in the actual language this is not generally the case; and hence it is found more convenient to assume the nominative as the basis of analysis.

One of the most characteristic distinctions between objects is that which life affords, and accordingly the sign, by the affixation of which to the stem the nominative form of the noun is produced, is a gender sign. For living objects, the sign primitively affixed to the noun-stem in the Indo-European languages was  $s$ . Some scholars hold that neuter nouns were distinguished by  $t$ , which they consider possesses a certain power of symbolizing lifeless or inert bodies. But the evidence that  $t$  was ever used, except in pronominal declension, as a sign of the neuter gender, is very doubtful. The Gothic neut. adjective-ending *ata* is, according to Bopp, merely a suffixed pronoun. Mankind has, however, at all times, figuratively endowed certain lifeless objects with life, and abstract conceptions, such as justice, virtue, etc., are embodied as male or female forms, according as our fancy loves to consider them of the one or other sex; the names which are used to symbolize these objects or abstract conceptions take, accordingly, the sign of living objects.

The nominal sign  $s$  has, however, been but imperfectly preserved; the feminine forms, which incline to vocalic auslaut with long vowels, seem to have thrown it off, apparently with the



object of marking the distinction of the sexes. This tendency to have vocalic auslaut is well shown in the adjectives having the endings in the Sanskrit, *as, á, am*; in the Greek, *ος, α (η), ον*. Even masculine forms often lose the *s*. In the Gothic it is only preserved in masculine substantives with consonantal stems; and in masculine adjectives and pronouns. In the Old High German the substantives have altogether lost it, while in adjectives and pronouns it has become *r*.

The neutral *t* of the pronominal forms has to a great extent been lost. In the Greek it does not occur at all; in the Latin it has become *d*, e.g.: *id, illud, quid*, etc. In the Gothic it occurs in the pronouns *is, si, ita*; English *he, she, it*; Old Irish *é, sí, ed*; Gothic *sa, so, thata*, Anglo-Saxon *the, theó* (earlier *se, seó*), *that* (= Greek *ὁ, ἡ, τό* for *τοτ* = Sanskrit *tat*). In the Old High German it becomes *z*, e.g.: Gothic third person of the pronoun masc. *is*, neuter *ita* = Old High German masc. *ir* sometimes *her*, neuter *iz*, sometimes *ez*. In the Gothic *blindata, gôdata*, Old High German *plintaz, quotaz*, Middle High German *blindez, quotez*, the ending *ata*, as above observed, is a suffixed pronoun, and cannot consequently be considered as a proof that *t* was the sign of the neuter, in other than the pronominal declension. In many cases the neutral *t* has been replaced by *m* or *n*, which, however, belonged originally to the accusative singular; thus, Greek *ἦ, ἱν*.

### § 7.

But the grammatical signs or endings cannot always be directly affixed to stems; this is especially the case with those ending in consonants, and where the stem likewise ends consonantly. If in such cases the ending did not affix itself directly, the final stem-consonant would be rendered liable to change, and the modification may proceed so far as to render the stem unrecognizable. Therefore a copulative vowel is introduced between the stem and the ending, which originally had a mere phonetic function, and possessed no etymological or grammatical signification. The vowel by itself is always short, and consequently very changeable. It is often an extremely difficult problem to distinguish between the copulative vowel and a derivational vowel, and therefore between a derivational and stem-form; it is also an important one, for the copulative vowel, though having no derivational character, has gradually come to be looked upon as an integral part of the stem-ending, and has even penetrated where it was not absolutely required.<sup>5</sup>

<sup>5</sup> In Finnish nearly all the stems are two-syllabled. The first or root syllable is accentuated, the second has a short vowel auslaut. This short vowel, unlike the root-vowel, which is invariable, sounds differently according as the stem is

But in some cases a whole syllable, the consonant forming the auslaut, acts the part of the copulative vowel. The forms produced in this way have necessarily more of the character of derivation than those yielded by the copulative vowel,—indeed many of them have the character of true derivation. But as I have characterised derivation as always starting from fully formed words, all noun-forms produced by means of copulative syllables, that do not proceed from ready formed words, and which do not distinctly refer to such as their etymological basis, but, on the contrary, refer to a radical element which is not by itself intelligible, must be reckoned to belong to the present category.

We have accordingly three distinct classes of stems as regards their relations to the grammatical endings:—1. Pure stems, to which the endings are directly affixed; 2, stems which require a vowel between them and the ending; and 3, stems which require a syllable ending in a consonant between them and the grammatical ending. The second and third classes are called middle forms, that is, intermediate between pure stems and true derivational forms.

Of the pure stems some have vocalic and some consonantal auslaut. The middle forms, produced by affixing a copulative vowel, may all be looked upon as vocalic ending stems, while the middle forms, which result from affixing a consonantal ending syllable, are consonantal stems. We have accordingly:

*Vocalic Stems.*

- 1 Pure Stems.
- 2 Middle forms produced by affixing a copulative vowel.

*Consonantal Stems.*

- 1 Pure Stems.
- 2 Middle forms produced by affixing a syllable ending consonantly.

VOCALIC STEMS.

§. 8. *Pure Stems.*

All monosyllabic nouns may, strictly speaking, be considered to be pure stem-words, in which the nominal sign is directly affixed to the stem without any intervening phonetic material. Such nouns occur in the Greek and Latin, though they are not numerous. *Greek*: *κί-ς* (masc. gen. *κι-ός*), *γραῦς* (*γραῦ-ός*), both of which appear to exhibit traces of a vowel not belonging to

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pronominal or verbal. It is a mere rhythmical addition to the root which sometimes acquires the signification of a derivational suffix, and has consequently a striking analogy to the copulative of the Indo-European languages. The affixation of this copulative is the only mode of stem-formation in the Finnish; in Hungarian it has been to a great extent obliterated. It would be extremely interesting to trace this rhythmical stem-forming vowel through the whole Finno-Tatarian Family. Here, however, it would be out of place to dwell further on the analogy.

the root;  $\delta\rho\tilde{\upsilon}\varsigma$ ,  $\theta\acute{\omega}\varsigma$  possess still more of the character of pure stems. Some forms usually included under this category are undoubtedly not primitive pure vocalic stems; for example,  $\beta\omicron\tilde{\upsilon}\varsigma$  may perhaps be more properly reckoned among the consonantal stems, as it stands for  $\beta\omicron\varsigma\tilde{\upsilon}\varsigma$ .

*Latin.* In the Latin there are extremely few forms which can be considered, strictly speaking, as pure vocalic stems. Perhaps the only form is *grus*, stem *gru*, for it is doubtful whether the *r* in the plural *vī-r-es* of *vīs* (stem *vīr*?), and in the old form of the genitive—*sueris*—*su-er-is* of *sus*, Sanskrit, *sū-kara*, be not organic, instead of being, as is generally supposed, merely euphonic.

*Gothic.* In the Gothic a number of such monosyllabic words, belonging to what is called the strong declension, is to be found; in the masculine and feminine they have the nominative sign *s*, while in the neuter no suffix can be found, *e.g.*: masc. *fisk-s*, *dag-s*, *balg-s*; fem. *anst-s*; and neut. *leik*. These nouns correspond with the Greek nouns derived from consonantal stems:  $\theta\rho\iota\tilde{\xi}$ ,  $\alpha\tilde{\iota}\tilde{\xi}$ ,  $\pi\tilde{\upsilon}\rho$ , and the Latin nouns *urb-s*, *pon-s*, *mel*. So far as the nominative case goes, the analogy is complete; but if we compare them through all their cases, we shall find that in the Greek and Latin the nouns of this kind affix the case-endings to the stem in exactly the same way throughout, namely, its nominative directly, and the others by means of a copulative vowel, which is the same in all the cases, while the Gothic nouns take different vowels in the plural. For example:

Nom. and Voc.	. .	fiskô-s	balge-is
Gen.	. .	fiskê	balge
Dat.	. .	fiska-m	balgi-m
Acc.	. .	fiska-ns	balgi-ns.

It would appear from this, that the Gothic nouns under consideration are only relics of more primitive forms, still preserved in the plural, but blotted out in the singular. According to this view, all the nominal stems must have been clothed with a vocalic auslaut, which was either *a* or *i*, and called by Grimm the *declension vowels*, and which correspond to the copulative vowels of the middle forms in the Greek and Latin. The primitive form of *fisk-s* must therefore have been *fiska-s*, and of *balg-s*, *balgi-s*—forms which approach very close to the Latin, as may be seen by comparing the primitive form of *gast-s*, *gasti-s*=Latin, *hosti-s*. The view just put forward is supported by the circumstance that there exists a class of nouns, in which the clothing or declension vowel of the stem is *u*, that are not syncopated like those with the vowels *a* and *i*. Although at first sight the Germanic languages appear to contain the largest number of pure



stems, the preceding considerations appear to show that there are no pure nominal stems in those languages. On this account I will include the whole of those Gothic nouns under the middle forms with vocalic auslaut.

### §. 9. *Middle Forms ending vocally.*

The term middle form implies that we have passed beyond the stem, but have not yet arrived at a true derivational form. The nouns derived from those middle forms have the same analogy to those obtained from pure stems, that the Greek verbs in *άω, έω, ίω*, etc.—as *τιμάω, φιλέω, μεθύω* have to those in *μι*, as *εἰμί, τίθημι, δίδωμι*, etc. The nominal middle forms have, however, much less of a derivational character than the verbs above named; so that, while always bearing their mode of genesis in mind, we may consider them as vocalic stems.

As the primitive vowels were *a, i, u*—*e* and *o* having been formed later, the primitive stem-forming vowels must have been also *a, i, u*. To these were added at later language-periods *e* and *o*—*ē* being formed by the softening of *ā*, *e* of *i*, and *o* of *a*. There is also a secondary *u* produced from *a*, which must not be confounded with the primitive *u*. We may consequently include all vocalic stems under *a*-stems, *i*-stems, and *u*-stems.

#### *I-stems.*

*I*-stems approach closest to the character of pure stems. In the Latin the *i* becomes *e*; in the Greek it sometimes becomes *υ*, and in the oblique cases *ε*.

GREEK.—The masculines and feminines of the third declension in *-ις*, gen. *-ιος, -εως*, belong to the *i*-stems; e.g.: *φύσις (-εος) πόλις*. There are no neuters in *i*. We have a masculine form in *υ*, in *πῆχυς (-εως)*, and a neuter one in *ἄστυ (-εως)*: *ταχύς, -εῖα, -ύ* (gen. *ταχέ-ος*), *γλυκύς*, etc., are forms in *υ* of the adjective. The oblique cases betray in these examples the origin of the *υ* obtained from *ι*.<sup>6</sup>

LATIN.—The masculines and feminines of the third declension in *is*, and the feminines in *ēs*, which do not take an augmenting syllable in the genitive, belong to the *i*-stems as: *hosti-s, civi-s, aede-s*; the *i* being changed in the latter into the long *e* characteristic of feminines. In neuters the *i* is changed into *ē*, but in the plural the *i* again appears: *mar-ē, mar-i-s, mar-i-a*. The adjective stems, *brevi, dulci, levi*, belong to this category.

GOthic.—Among the Gothic *i*-stems which correspond to the preceding, may be mentioned the primitive forms: masc., *gastis*,

<sup>6</sup> The passage of *ι* into *υ*, spoken of above, although believed in by some eminent philologists, is not very satisfactorily established.

*gardis, balgis*, existing in the Gothic, in the syncopated forms: *gasts, gards, balgs*, but showing traces of the vocalic clothing of the stem in the plural: nom., *gasteis, gardeis, balgeis*; fem., *dēdis, vaurtis*, syncopated in the Gothic to *dēds, vaurts*; nom. plur., *dēdeis, vaurteis*. It will be seen from the preceding, that the feminines also retain the nominative sign *s*, the feminine form appearing to be marked by a gunation of the vowels of the endings in the genitive and dative singular, thus:

		<i>Masc.</i>	<i>Fem.</i>
Nom.	. .	<i>gast-s</i>	<i>ded-s</i>
Gen.	. .	<i>gast-is</i>	<i>ded-ais</i>
Dat.	. .	<i>gast-a</i>	<i>ded-ai</i>

As in the Greek there are no neuters formed from *i*-stems.

In addition to the feminines above discussed, and all of which belong to the strong declension, there is another peculiar class of *i*-stems belonging to feminine nouns of the weak declension, such as *managei*, gen. *manageins*, which will be better understood when I treat of the *a*-stems.

Adjectives derived directly from stems, and not through other forms, although differing essentially from substantives in their flexion, exhibited primitively the same distinction of stems into *a*-, *i*-, and *u*-stems, corresponding to the Greek adjectives in *ος*, *α*, *ον*, and *υς*, *αια*, *υ*; and to the Latin in *us*, *a*, *um*, and in *is*, *e*. But the primitive distinction is very much obscured in the Gothic, in which, with the exception of traces, the *i*-stems have wholly died out, while only a few of the *u*-stems remain; and even these pass in the oblique cases into the *a*-stems, with the addition of a derivational *i* (see the discussion of this subject under the head *a*-stems), so that the primitive character of the stem is only recognizable in the nominative. In the Gothic there are consequently only *a*- and *u*-stems to be distinguished.

#### *A-stems.*

GREEK AND LATIN. The *a*-stems in the Greek and the Latin admit of being divided into two classes:—

1. Stems in which the primitive *a* has been preserved unchanged, or changed into *ē*, and which may be subdivided into:
  - a*. Stems with primitive short *a*.
  - β*. Stems with *ā* or *ē*.
2. Stems in which the primitive *a* has been changed into *o* in the Greek, and into *u* in the Latin.

*A-stems with primitive short a.* In the Greek the masculines of the first declension in *-ας*, *-ης* are referred to this class, e.g.: *βορέας*, *εργέας* contracted to *ἐρμῆς*; the nominative *ς* is retained, but the vowel is inorganically lengthened. In the Latin, also, only

the masculines of the first declension, which, like the feminines of the same declension, have lost the nominative *s*, belong to this category, as: *scriba*, *agri-cola*, etc. Pott considers the long vowel as the result of contraction. It is probable that all the words belonging to this form are, in reality, derivatives in the second degree from nominal and verbal stems, that is, they contain, besides the nominative *s*, a second derivational element, which may still be recognized in the Greek nouns in *της*, as: *πολίτης*, etc., in which the derivational suffix is the syllable *τη*. This derivational suffix reminds us of the consonantal middle forms produced by affixing a syllable, the only apparent difference being that the latter has a consonantal auslaut, and the former a vocalic one.

*A-stems with ā or ē.* As was stated above, feminine nouns prefer long vowels and vocalic auslaut; accordingly we find that this class includes the feminines of the first declension in the Greek and Latin, all of which have lost the nominative *s*. In the Latin the *ā* is invariably shortened, but in the Greek it is partly retained, or changed into *η* and partly into *ᾱ*, e. g.: *χώρᾱ*, *δίκη*, *σφῦρᾱ*. While the vocative of the *a*-stems, with primitive short *a*, appears as a rule with the organic short *a*, that of the stems with *ā* or *ē* is the same as the nominative, and consequently sometimes has an inorganic short *a* whenever the nominative has one. The primitive long vowel has been preserved in the form *ē*, and likewise the nominative *s*, even in the vocative, in the nouns from stems of this class, which belong to the Latin fifth declension, which is but an older form of the first, e. g.: *di-e-s*, *fid-e-s*. Here also we meet with forms which appear to belong to the class of vocalic stems obtained by means of a derivational syllable-suffix, as described above, the analogy being strongly supported by their admitting of being declined either according to the first or fifth declension, e. g., *materies* or *materia*, *canities* or *canitia*.

*A-stems, in which the primitive a has been changed in the Greek into o, and in the Latin into u.* This change occurs in the words of the second declension in *ος*, *ον*, and *us*, *um*; those in *ος* and *us* are, as a rule, masculine (as in the Sanskrit is always masculine); there are some, however, exceptionally feminine, as *ἡ τάρφος*, *fagus*, etc. The vocative shortens *o*, *u*, to *ε*, has organically no nominative *s*, and in the neuter is the same as in the nominative. To this category belong the Greek adjectives in *ος*, *α* (*η*), *ον*, and the Latin ones in *us*, *ᾱ*, *um*. From this it will be seen that the vowel is shortened in the feminine in the Latin, but not in the Greek; but, on the other hand, some Greek adjectives of this category do not distinguish the feminine at all.

**GOthic.** To the Gothic *a*-stems belong the masculine, feminine, and neuter forms corresponding to the Greek forms in



ος, α, ου, and the Latin ones in *us*, *a*, *um*, discussed above, and to the Sanskrit in *as*, *â*, *am*. For example: masc. *dags*, *fisks*, etc., which are syncopated forms from *dagas*, *fiskas*, etc., as I have already fully described, nom. plur. *dagôs*, *fiskôs*, etc.; fem. *giba*, *bida*, etc., nom. plur. *gibôs*, *bidôs*, etc.; neuter, *vaurd*, *leik*, etc.; nom. plur. *vaurda*, etc. The masculines have lost the *a* in the singular, but retained it in the form of *o* in the nominative plural, *e* in the genitive, and *a* in the dative and accusative (see declension of *fisks*, pp. 63, 71); the feminines have retained the *a* in the oblique cases as *a* or *o*, but have thrown off the nominative *s*. The neuter form has lost the *a* in the singular as well as the neuter nominative sign:—the full form of the nominative singular of *vaurd*, for instance, should have been *vaurdat*, or, as the *t* has almost entirely disappeared as a neutral sign, more probably *vaurdam*—Latin *verbum*; it has retained it in the plural *vaurda*, but not with the neutral sign.

I have already spoken of the Gothic adjectives, and here it is only necessary to add that, although the distinction between the clothing vowels of the stems was earlier obscured, and to a greater extent in the case of the adjectives than in that of the substantives, the signs of the genders have been much better preserved. Indeed, in the latter respect the Gothic adjectives belonging to the *a*-stems have endings of a much more primitive form than either the Greek or the Latin, or even than the Sanskrit.<sup>7</sup> These endings are *s*, *a*, *ata*, or, in the primitive form, *s*, *a*, *t*, as for example:—

	Masc.	Fem.	Neut.
Primitive organic form . .	blind-a-s	blind-a	blind-a-t
Syncopated Gothic form . .	blind -s	blind-a	blind-a-ta

#### *Ya- or Ia-stems.*

Besides the primitive *a*-stems, above described, there exists another class of stems, which, as they do not give rise to any essentially peculiar flexion, may be considered as a class of secondary forms of the simple *a*-stems. They are formed by the intercalation of an *i* (*y*) between the stem and the declension-vowel, and may accordingly be distinguished as *ya-* (*yâ-*) stems.<sup>8</sup> In the Gothic the stems of this class are usually considered to be middle-forms, properly so called, the Gothic *a*-stems being reckoned as pure stems. I think I was justified, however, in classing them along with the middle forms of the Greek and the Latin, and that, this being so, the *ya-* (*yâ-*) stems approached still nearer to true derivational forms than any of those yet mentioned.

<sup>7</sup> On the assumption that *t* was the primitive neuter gender sign, which is not, however, generally admitted. Bopp considers the ending *-ata* to be a suffixed pronoun. See § 6, p. 60.

<sup>8</sup> *Ya-* masculine and neuter; *Yâ-* feminine.

The Greek and Latin forms which come under this category, are the substantives and adjectives in *ιος, ia, iov, ius, ia, ium*—e.g.: *κύριος, ἴδιος; medius, media, medium*.

As the only forms of this kind referred to in Dr. Ebel's paper are Gothic, and as the object of this sketch is merely intended to elucidate that paper, I will not further consider the Greek and Latin *ia-(iá-)*stems [*ya-(yá-)*stems], and will accordingly confine myself to a few observations upon the Gothic ones.

In the Gothic the intercalated *y* is firmly retained before the endings through all the cases, e.g.: *haryis* instead of *hari-s* (the primitive organic form of which would be *haria-s*); gen. *haryis*; dat. *harya*, etc. In the Old High German the nom. sing. alone retains it. If the stem-syllable be long, or ends in two consonants, *yi* changes into *ei*: Gothic *hairdeis* instead of *hairdi-s* (the primitive form of which would be *hairdia-s*): Old High German *hirti*, gen. *hirtes*; Middle High German *hirte*, gen. *hirtes*. In the Modern High German it passes into the weak declension: *der hirt, des hirten*. Some of the feminines of this category retain the full organic form, such as *vrakya, brakya*; and in some the *i* is even preserved in the Old High German as *y* or *e*, as for example, *suntya*; while other words throw off the *a*, e.g.: Gothic—*bandi, kunthi*, instead of *bandya, kunthya*.

The distinction between the *a* and the *ya*-stems disappears in the masculines and feminines when the *a* and *i* of the Old High German are softened into *e*,—the two forms then coinciding; the existence of such a distinction being only betrayed by the umlaut of the stem-vowel in the *ya* series. The same observation applies to the neuters, one example of which will suffice to show their forms, e.g.: Gothic *kuni*, gen. *kunys*, instead of the full organic form *kunya-t*, or *kunya-m*, or *kunya-a*; Old High German *chunn-i*, gen. *chunn-es*, the *i* being dropped, as was already noticed in the case of the masculines, in all the cases except the nom. sing. In the Middle High German the *i* becomes *e* as in the other genders: *künne*, in which the umlaut of the stem vowel betrays the *ya*-stem.

The adjective forms of the *ya*-stems are exactly analogous to the substantives. In the Middle and New High German the character of the stem is betrayed only by the umlaut. The striking analogy between some of the Gothic and Latin adjective forms of the *ya*-stems, is well shown by the following comparison: Latin—*medius, media, medium* = Gothic—*midis, midya, midyata*.

*Consonantal stems changed into vocalic (a- and i-) stems.*

Some Latin *n*-stems drop the *n* in the nom. sing., e.g.: in *ōn*,—*homo, ordo, margo*, of which the full organic forms with the

nominative *s* should be: *homon-s*, *ordon-s*, *margon-s*; in *ον*,—*leo*, *latro*, *carbo*, the full organic forms of which should be, *leon-s*, *latron-s*, *carbon-s*; the feminine verbal nouns in *ιο*, which is obviously *ιον*, with the *n* dropped, *e.g.*: *actio*, *ratio*, *statio*, etc., the full organic forms of which should be, *action-s*, *ration-s*, *station-s*. These nouns give us in the inorganic form of their nom. sing. apparent vocalic stems. A comparison between the full organic forms of the verbal nouns, which are undoubted derivatives in the second degree, and those of the other examples given above, affords strong grounds for believing that the latter also are derivational forms of the second degree. Except in not having a final *n* in the nom. sing., these nouns are perfectly analogous, in all the other cases, to the Latin nouns in *in*, especially to those in which the *i* is softened to *e* in the nom. sing., *e.g.*: *pecten*, etc.; and the verbal nouns *flumen*, *tegmen*, *lumen*, *carmen*, etc., and may be compared with the Greek ἀκτίν, gen. ἀκτίνος; λιμήν, gen. λιμένος; ἀηδών, gen. ἀηδόνης; εἰκόν, gen. εἰκόνης; λειμών, gen. λειμώνος.

There is a class of Greek nouns, chiefly feminine, which at first sight appear to form their stems in *ω*, and which, as a rule, do not take the nominative *s*, *e.g.*: ἡ πειθώ, gen. πειθός, the *ω* being shortened to *ο*; ἡ ἡχώ, gen. ἡχός, etc. Some are, however, formed with the *ς*, as ἡ αἰδώς, gen. αἰδός, the *ω* being shortened; ἡ ῥως, gen. ῥωος, etc., without the shortening of the *ω*. According to Curtius, all these forms are the relics of mutilated *n*-stems.<sup>9</sup> There is an obvious difference, however, between them and the Latin forms—*homo*, etc.—with which, if this hypothesis be correct, they would connect themselves, namely, that the *n* appears regularly in the oblique cases of all the Latin nouns, not only of those ending vocally in the nominative, but even of those which take the nominative *s*, as *sanguis*, which is evidently for *sanguin-s*.

In the Gothic, a class of nouns with vocalic auslaut is also found, which exhibit a remarkable analogy with the Latin nouns just discussed; for example, *guma*, Eng. *g(r)oom*, gen. *gumins*, which may be equated with the Latin *homo*, gen. *hominis*; *rathyô*, gen. *rathyôns*, with the Latin *ratio*, gen. *rationis*; *namô*, gen. *namins*; nom. plur. *namna*, with the Latin *nomen*, gen. *nominis*; nom. plur. *nomini*. The reasonable conclusion from this is, that these vocalic forms are in reality consonantal *n*-stems, having more or less of a true derivational character. According to this hypothesis, their full organic nominative forms should be: *guman-s*,

<sup>9</sup> This hypothesis of Curtius, by which *ω*, *ως*, *ας*, *αρ*, are considered to be= *av*, is, to say the least, extremely improbable.



*rathyôn-s*, *namon-s*. This hypothesis receives considerable support from the fact that several of those forms have again taken up *n* in the Modern High German, *e. g.*:

Gothic.	Old High German.	Middle High German.	Modern High German.
boga, <sup>(?, Krim. Goth.)</sup>	bogo, . . . .	boge, . . . .	bogen.
graba(?), . .	grabo, krapo, . .	grabe, . . . .	graben.
garda, . . .	garto, . . . .	garte, . . . .	garten. <sup>10</sup>
namô, . . .	namo, . . . .	name, . . . .	{ name and also namen.

Probably all the foregoing examples may be referred to *n*-stems; but there is likewise a class of feminine nouns, which, considering them as vocalic stems, may be classed as *i*-stems, and which in the Gothic end in the diphthong *ei*, *e. g.*: *audagei*, *managei*, gen. *manageins*, etc.; they present the same peculiarities of flexion as the others above mentioned, as will be shown further on. In this case also we are led to the conclusion that they are *n*-stems which have thrown off the *n*, not only by the analogy of flexion, but also by the fact that the greater part of this class of nouns take up an *n* in the nominative in the Old High German; we thus get, along with *manikî*, *manakin*, while in the Modern German we have *menge*, unlike the *a*-stems. So also Old High German *ôdhîn* and *oedi*, New High German *oede*; *sterchên*, New High German *stârke*.

The dropping of the *n* does not, as has been already remarked, affect the declension of the Latin or Greek nouns; but it is not so in the Germanic languages, where a peculiar declension has been developed, known as the weak declension, in contradistinction to the strong or true declension of words like *fisks*, *dags*, etc. The difference will be better understood by the following comparison:

Strong: Nom. sing. *fisks*; gen. *fiskis*; dat. *fiska*; acc. *fisk*; plur. nom. *fiskôs*.  
Weak:       ,,       *hana*; ,, *hanins*; ,, *hanin*; ,, *hanan*; ,, *hanan*.

All the nouns of the class we have been here considering belong to the weak declension, the great peculiarity of which is the addition of an *n* to all the endings of the cases, except the nominative singular and dative plural. It belongs to adjectives as well as to substantives, but while the latter decline exclusively strong or weak, adjectives may be declined according to either

<sup>10</sup> Besides *garda*, there is also in the Gothic the word *gards* (plural *gardeis*)=house, family, etc.; but evidently having the meaning of garden also, as is proved by *veingards*=vineyard; *aurtigards*=orchard. The German *garten*=English *garden*, could not, however, be obtained from it; but, on the other hand, the English *yard* (as in court-yard) is derived from it.

declension. The weak adjective declension corresponds with that of the substantive; its chief peculiarity is that of having vocalic auslaut in all three genders, *e.g.*:

<i>Masc.</i>	<i>fem.</i>	<i>neut.</i>
blinda,	blindô,	blindô.

The same vowels characterise the genders, *e.g.*: *masc. hana*; *fem. tuggô*; *neut. hairto*. In the Old High German the masculine *a* and the feminine *ô* change to *a*. In Middle and New High German both the *a* and *o* become *e*, so that all genders end alike. This change is not, however, confined to the vowels; for although in the Gothic the case-endings are not affected by the addition of the *n*, the genitive *s* is dropped, and *hanins* becomes *hanin*. In the Middle High German, the uniform ending *en* took the place of all the different endings, both singular and plural, with the exception of the nominative singular.

The existence of the *s* in such Latin forms as *sanguis* (for *sanguin-s*), which belong to the same class as *ratio*, *nomen*, etc., justify, as I think, the additions of that nominative sign, in reconstructing the full organic nominative forms of those and similar nouns. For its addition in the analogous German nouns, I have the great authority of J. Grimm; but Bopp's discovery that the primitive nominative sign in the Indo-European language was *s*, places the matter beyond doubt. It is right, however, to state that some philologists, amongst others Heyse, consider that the full organic forms never had *s*. A full discussion of this point, however important, is incompatible with the limits of our space, and would be in other respects outside the specific objects for which this introduction has been written.

### *U-stems.*

**GREEK.** Under this head come the Greek words in ὤς of the third declension, which retain the *υ* in the oblique cases, *e.g.*: *nom. ὁ ἰχθύς*, *voc. ἰχθύ*, *gen. ἰχθύος*, etc.

**LATIN.** The Latin *u*-stems belong exclusively to the words declined according to the fourth declension, such as those in *ūs*: they are chiefly masculine, but also exceptionally feminine, *e.g.*: *manus*, *socrus*, etc.; verbal nouns in *tus*, which may be considered to be true derivatives in the second stage, *e.g.*: *ductus*; neuters in *ū*, *e.g.*: *cornu*. The nouns of the second declension, which appear to contain *u*-stems, are *a*-stems, the *a* having been replaced by *u*. This secondary *u* is much more unstable than the primitive *u* of the fourth declension, which is never suppressed by the vowel of the ending, but, on the contrary, absorbs the latter in the genitive singular and nominative and accusative

plural, *e.g.*: *fructûs*, instead of *fructuis*, *fructues*. It has not wholly resisted modification, however, having been, in most cases, softened into *i* in the dative and ablative plural, *e.g.*: from the older *fructubus*, has come *fructibus*; in others, however, it has remained unchanged, as in *acubus*, *lacubus*. The whole declension may be considered as a contracted secondary form of the third declension.

**GOthic.** The Gothic words founded on *u*-stems correspond exactly with the Greek words in *υς* of the third declension, and the Latin ones in *us* and *u* of the fourth. Unlike the Gothic *a*- and *i*-stems, the *u*-stems are not syncopated, and consequently we get them in their primitive organic forms, the masculine and feminine taking the *s* in the nominative singular, *e.g.*: masc. *vulthus*, *sunus*, nom. plur. *sunjus*; fem. *handus*, nom. plur. *handjus*, *vrithus*, etc. The neuter exhibits no trace of its peculiar sign *t* or *m*, *e.g.*: *witu*, *faihu*. The masculines and neuters preserve the *u* in the singular in the Old High German, but lose the nominative *s*, *e.g.*: *sunu*, *wihu*, etc. In the plural the *u*-stems pass into the *i*-stems; and in the Middle High German they altogether disappear, the masculines and feminines becoming confounded with the *i*-stems, and the neuters with the *a*-stems.

I have already mentioned that the primitive distinction between the *a*-, *i*-, and *u*-stems was very much obscured in the case of adjectives; and that, with the exception of traces, the *i*-stems had wholly died out. The *u*-forms of the adjective, which were not very numerous, took *s* in the nominative of both the masculines and feminines, but the neuters had no gender sign, *e.g.*: nom. masc. and fem. *hardus*; neut. *hardu*. The *u*-forms died out in the Old High German, leaving for all adjectives only *a*-stems.

#### CONSONANTAL STEMS.

##### §. 10. Pure Stems.

###### *S-stems.*

**GREEK AND LATIN.**—ὁ μῦς, (*mus*.) gen. μυός, which stands for μυσ-ος, = *muris* for *mus-is*. In the forms like οὐς, gen. ὠτ-ός — φός, gen. φωτ-ός, etc., either the *τ* has become *ς*, or the nominative *s* has inorganically affixed itself, in which case the *t* dropped out. In either case these forms belong primitively to dental tenuis-stems, and not to the *s*-stems. *Mus*, *flos*, *mas*, without the nominative sign. Except in *vās*, *vāsīs*, *s* becomes *r* in the oblique cases, as it stands between vowels. It sometimes appears duplicated, as in *os*, *ossis*, but here it stands for *st* (compare ὀστέον).

###### *Stems with Sonant Auslauts.*

###### (Semi-vowels, *m*, *l*, *n*, *r*, *ng*.)

**GREEK AND LATIN.**—Semi-vowels: *nix* for *nigv-s*, *bos* for *bov-s*,



etc.; *l-stems*: ἄλ-ς, *sal*; *n-stems*: ῥίς for ῥίν-ς, the liquid having dropped out, φρήν, without the nominative sign; *Pan*, without the nominative suffix; *r-stems*: χείρ, θήρ, etc.; *fūr*, without the nominative signs.

### *Stems with Medial Auslauts.*

GREEK AND LATIN.—*B-stems*: φλέψ for φλεβ-ς, the -ς being the nominative suffix: *urb-s*, *scob-s*; *d-stems*: ποῦς for ποδ-ς; *pes* for *ped-s*; *vas* for *vad-s*, the dental having dropped out; *g-stems*: φλόξ for φλογ-ς; *lex* for *leg-s*, *rex* for *reg-s*.

### *Stems with Tenuis Auslauts.*

GREEK AND LATIN.—*P-stems*: γύψ for γυπ-ς; *op-s*, etc.; *t-stems*: φώς for φωτ-ς; *dens* for *dent-s*, *pons* for *pont-s*, etc.; *k-stems*: λύγξ for λυγκ-ς, σφήξ for σφήκ-ς; *pax* for *pac-s*.

### *Stems with Aspirated Mute Auslaut.*

GREEK.—θοίξ for τρίχ-ς, βήξ for βηχ-ς.

GOthic.—It has been shown in a previous section, that pure consonantal stems, properly so called, do not exist in the Gothic, and that the forms which at first sight might come in here, belong rather to the vocalic middle forms, under which they have accordingly been treated. I shall merely give here a few examples of forms which might otherwise have come under the respective categories above given for the Greek and Latin: *sair-s*, *fräiv*; *bagm-s*, *hilm*; *stol-s*, *mel*; *siur*, *siggr-s*; *stab-s*, *lamb*; *sand-s*, *land*; *hug-s*, *gagg*; *hup-s*, *slip*; *skufi-s*, *beist*; *strik-s*, *leik*; *munths*, etc.

### §. *Consonantal Middle Forms.*

The nominative of some of the forms which come under this head exhibit the complete stem, which in the oblique case may be unrecognizable, owing to letter-changes or the dropping of letters. In most cases, however, the stem can be better determined from the oblique cases, in consequence of the nominative *s*, or the change of the vowel of the affixed syllable so altering the appearance of the stem in the nominative as to render it unrecognizable. The form of the stem to which the case-endings in the oblique cases are affixed is usually called the *theme*, to distinguish it from the true stem-form, with which it sometimes coincides, but generally not. The neuter form of adjectives is best adapted for determining their stems.

### *S-stems.*

In studying the stems of this class, we should be careful to distinguish the *s* stems proper from words with the auslaut *s*, in

some of which the *s* is secondary, being formed by the softening of a *t*, etc., and in others it is the nominative *s*, before which the liquid *n* and the mutes *a* and *t* have dropped out.

GREEK.—Neuters of the third declension in *ος* (= Sanskrit *as*) which show the pure stem in the nominative; in the oblique cases the *ο* becomes *ε*, and the *ς* drops out, *e.g.*: γέν-ος, gen. γέν-ε-ος for γέν-εσ-ος, and contracted to γέν-ους. Adjectival substantives in *ης*, *εος*=*ους*, *e.g.*: ἡ τριήρης;—forms of this kind may be considered as true derivatives. Adjectives in *ης*, *ες*, *e.g.*: σαφής, σαφές, gen. σαφ-έ-ος for σαφ-έσ-ος, and contracted to σαφοῦς.

LATIN.—To this category belong certain isolated masculine and feminine substantives in *ος*, such as: *honos*, *arbos*, the *s* of which was afterwards softened to *r*. The adjective *vetus* comes under this head also. The substantives in *is* and *us*: *pulv-is*, *cin-is*, *ven-ūs*, *tell-ūs*, are most probably *r*-stems, in which the *r* has dropped out before the nominative *s*. Neuters of the third declension in *us* (= Greek *ος*), the affixed syllable *us* being weakened before the oblique case-endings to *ör* or *ër*, *e.g.*: *corp-us*, gen. *corp-us-is*, weakened to *corp-ör-is*, *genus*, gen. *gen-us-is*, weakened to *gen-ër-is*.

#### *Stems with Sonant Auslauts.*

The stems which come under this category are: in the Greek those in *ν*, *ρ*; in the Latin and the Gothic *l*, *n*, *r*. *M* does not occur as the auslaut of a stem in either the Greek or the Latin. The pure stem is preserved in the nominative in the neuter,—the vowel being always short in the Greek. The other genders are distinguished in the Greek either by the nominative *s*, before which the liquid drops out, or especially in the feminines, by lengthening the vowel of the formational or affixed syllable. No such distinction of gender occurs in the Latin, the nominative *s* having given way to the liquid in almost every case, except in a very few instances, *e.g.*: *sanguis* for *sanguin-s*.

*L-stems*: stem-forming syllable *il*: masc. Latin *pugil*, *mugil*, Gothic, *sauil*; *ul*: Gothic, *Hakul-s*.

*N-stems*: stem-forming syllable *än*; Greek neuter adjective μέλ-αν, Gothic, *saban*; *ān*: masc. παιάν, gen. παιᾶνος; *ēn*: λιμήν, gen. λιμέν-ος, *ēn*: "Ελλην, gen. "Ελληνος; *īn* softened to *en* in the nominative in *pecten*, and in the derivational suffix of verbal nouns, *-men*, gen. *-minis*, *e.g.*: *lumen*, *flumen*, etc.; *īn*: ἀκτίν for ἀκτίν-ς; *ōn*: Greek adjective πεπον, masc. substantives δαίμων, gen. δαίμονος; *ōn*: λείμων, gen. λείμωνος. To the preceding may be added the nouns with vocalic auslaut, which are considered to have thrown off

the *n*, and which I have already discussed, as: *homo*, *Macedo*, *carbo*, etc.

*R-stems*: stem-forming syllables—*är*: νέκταρ, Latin *Caesar*, Gothic *Kaisar*, *fadar*; *ār*: calcār, gen. *calcāris*; *ēr*: ὁ ἀήρ gen. ἀέρος, Latin *anser*, Gothic, *maurthr*; *ēr*: κρατήρ. In this and similar words the stem-forming syllable may be considered to be *τηρ*, and to be a derivational one for verbal nouns; *ör*: ῥήτωρ, gen. ῥήτορος—here the stem-forming suffix is *τορ*, which may be compared with the Latin ones in *tor* and *sor*, e.g.: *lector*, *cursor*;—*mar-mor* is produced, however, by duplication and not by suffix; *ūr*: masc. *augur*, gen. *auguris*, in which the *u* remains unchanged in the genitive case; *turtur* is a stem also formed by duplication; neuters which retain the *u* in the oblique cases: *sulfur* and the duplicated stem, *murmur*; neuters which soften the *ũ* to *ö*: *femur*, gen. *femoris*, etc.

#### *Stems with Medial Auslauts.*

Stem-forming syllable *ib*; adjective *caelebs*, gen. *caelibis*; *üb*: ὁ χάλυψ, for χάλυβ-ς, gen. χάλῦβος; *äd*: λαμπάς, gen. λαμπάδος, *lampas*, gen. *lampadis*; *ēd*: mercēs, gen. *mercedis*; *īd*: ἐλπίς, gen. ἐλπίδος, *cuspis*, gen. *cuspidis*, *praeses*, gen. *praesidis*; *īd*: κρηπίς, gen. κρηπίδος; *ōd*: custos, gen. *custodis*; *ūd*: palus, gen. *paludis*. *Ag* is not found either in the Greek or Latin; *ēg*: λέλεξ, gen. *lelēgis*; *ig*: remex, gen. *remīgis*; *ūg*: πτέρυξ for πτέρυγ-ς (in the Greek the nominative *s* fuses with the labial mute *b* and in the Greek and Latin with the palatals), gen. πτέρυγος.

#### *Stems with tenuis auslauts.*

Stem-forming syllable *āp*: ἡ λαῖλαψ for λαῖλαπ-ς, gen. λαῖλαπος; *īp*: adeps, gen. *adīpis*. *Princeps* and similar words do not come here, as they are true compound words in which one of the constituent stems is the pure stem *ceps*. *Op* and *ōp* occur only in stems forming constituents of compound words, e.g.: κύκλωψ, gen. κύκλωπος, etc. *At*: a great number of the Greek forms in *āt* throw off the *t* in the nominative, and are, therefore, somewhat analogous to the Latin *n*-stems *homo*, *ordo*, etc., which throw off the *n*, e.g.: σῶμα, στόμα, δρᾶμα, πρᾶγμα, etc., which form their genitive in *τος*. Sometimes *τ* is replaced in the nominative by *ρ* or *ς*, e.g.: ἥπαρ, gen. ἥπατος; κρέας, gen. κρέατος. To the same category belong such forms in *īt*, as: μέλι, gen. μέλιτος. The Latin forms which may be referred to stems in *āt*, *āt*, *ēt*, and *ēt*, drop the *t* in the nominative, but retain the *s*, e.g.: *anas*, *libertas*, *teges* (the *e* becomes long after a vowel, as in *abiēs*), *quies*. So likewise the Greek forms in *ēt* and *it*, such as: ἐσθής, gen. ἐσθήτος; χάρις, etc. The Latin forms in



it have the *i* softened to *e*, e.g.: *miles*, gen. *militis*. The following forms also occur: *it*, e.g.: *Samnis*, plur. *Samnites*; *ot*, e.g.: *ἔρωc*, gen. *ἔρωτος*; *nepos*, gen. *nepōtis*; *ut*: *salus*, gen. *salūtis*.

To this category belong also the Greek forms in *κ* and the Latin in *c*, of which it will only be necessary to mention a very few. Stem-forming syllables *ak*, *ac*: *πίναξ* for *πίνακ-ς* (we may also add here the forms in *-ακτ*, as *ἄναξ*, gen. *ἄνακτος*); *āk*, *āc*: *θώραξ*; *formax*, and the adjectives having the derivational suffix *ac*, such as *audax*, *capax*, which inorganically retain the nominative *s*; *ek*, *ec*: *ἀλώπηξ*, gen., *ἀλώπεκος*, the neuter *halec*, or, fused with the nominative *s*, masc., *halex*; *uk*, *ic* and *ic*: *φοῖνιξ*, *salix*, gen., *salicis*, *radix*, gen., *radicis*; *uc*: *Cappadox*; *oc*, *ferox*; *uk*, *uc*: *κήρυξ*, gen., *κήρυκος*, *Pollux*.

There are also in the Greek stems in *ντ*, *νθ* but not in *νδ*; in the Gothic there are also stems in *n*, *t*, and *nd*, but as my object is rather to show what stems are, than to give a detailed account of all their forms, I will not dwell further upon this part of the subject.

## §. 11. DERIVATION.

Having so often spoken of derivation as distinguished from middle forms, and *ya*-stems, I think it will not be out of place if I say a few additional words upon the subject here. The words formed by derivation are: one kind of verbal forms from another, as, for example, diminutives, inchoatives, etc., verbs from nouns; nouns from verbs; one kind of noun from another, such as diminutives, feminine names, patronymics, abstracts from concretes; adjectives from substantives; substantives from adjectives; adjectives from verbs; adverbs from adjectives, etc.

The derivational affixes are of two kinds: 1. Of affixes consisting of single letters or syllables, which in their present state are not only not selfstanding words, but cannot even be traced up with certainty to selfstanding words, though having a definite symbolical signification which modifies the meaning of the stem. 2. Syllabic affixes which afford evidence of their having been once selfstanding words, but which in process of time have been modified and have lost that character.

It is often very difficult to distinguish between derivatives by means of the first kind of affix and the middle forms about which so much has been said in the preceding pages, especially when the affix consists only of a vowel. The origin of the first kind of derivational affixes is a problem of great interest and importance, but obviously one which would be quite foreign to my present object, even could I devote space to it, and feel competent to treat of it; I will therefore confine myself to giving a few

examples by which their character may be judged of. *Verbal affixes*: Greek *ευ, αζ, ιξ, υξ, υν, αυ*, etc., *e.g.*: *κολακ-εύ-ω* from *κόλαξ*, *λευκ-αίν-ω* from *λευκός*; the sign of the inchoative verb *σκ*=Latin *sc*; the Latin diminishing syllables *il, ul*, *e.g.*: *ventilo*. *Noun-Suffixes*: *μος, ες, της*, etc., *e.g.*: *βαθμός*, etc.; the Latin *tio* (properly *ti-on*), *e.g.*: *medita-tio*; the English *er, tion*, etc., *e.g.*: *carpent-er, imagina-tion*; in the German *jag-d* we have an example of a derivational suffix consisting of a single letter. *Adjectival Affixes*: *ρος*, *e.g.*: *φθονε-ρός*; the Latin *alis*, etc., *e.g.*: *leg-alis*.

The derivational affixes of the second class, being of greater phonetic dimensions than those of the first, have been less intimately fused with the stem, and consequently their historical development from selfstanding words can be more clearly traced. This kind of derivation was originally without doubt simple composition of the same kind as that by which compound words are still formed in living languages. It is the first stage of amalgamation from the mere agglutination which takes place in the formation of such words, as, *penknife, moonshine*, etc. Its transitional character is made still more evident by the circumstance that the affixes of this class are prefixes as well as suffixes, and that the former differs from particle composition in this only, that in the latter, two selfstanding words still existing in the language, combine together, while in the former, a self-standing stem combines with a letter or stem not now selfstanding. In the Greek and Latin the derivatives of the second class are neither so well marked or so numerous as in the Germanic languages. The suffixes *-ειδης, -φορος, fœv, dicus*, etc., are really stems, and consequently we may consider words ending in them to be compound words, rather than derivatives, *e.g.*: *θεοειδής, κανηφόρος, artifex, mendicus*, etc.

In the English we have a number of well marked derivational suffixes of this class; *e.g.*: *hood*=German, *heit*, Gothic, *haidus*, way, condition, as for instance, *girlhood*; *ship*=German, *schaft*, Old High German, *scaf*, shape, property, etc., as *partnership*; *dom*=German, *thum*, Gothic, *dôm*, primitively, tribunal, dignity or condition of a person in general, as, for instance, *dukedom*; *some*=Gothic, *sam*, a stem which signifies similarity, and, hence, Gothic, *sama*, English, *same*, *e.g.*: *handsome*; *ly*=German, *lich*, Gothic, *leik*, Old High German substantive *lih*, English *like*, body, shape, etc.

The following are examples of prefixes: Latin—*in, dis, com* (*con, co*), *re*, all of which have been borrowed into the English, which has also the prefixes *un, be*, etc., belonging to it as a Germanic language.

## §. 12. COMPOSITION.

This is the last stage of word-formation, and consists merely of the union of two stems, or even words with grammatical endings, so as to form one word. In the older language-periods a copulative vowel was frequently introduced between the constituent words—a phenomenon which offers a remarkable analogy to the stem copulative vowel. In the Greek, this vowel was generally *o*, seldom *ι*, or *ε*; in the Latin *i*, and exceptionally *o*, or *u*; in the Old High German it was generally *i*, afterwards *e*; and in the Modern German, as in the English, it has dropped out, or an *s*, and in the former language an *en*, which are flexional endings, have taken its place, *e. g.*, ἡμερ(ο)δρομος, *carn(i)fax*, *nacht(i)gall*, *Hülfs(s)buch*, *Tasch(en)buch*, *doom(s)day*. It is worthy of remark that the English word *night(in)gale* presents a kind of transition between the simple copulative *i* and the more usual Modern German *en*. The copulative vowel belonged, in the older languages, only to noun forms, and not to those obtained by the union of verbs and particles. Combination is sometimes accompanied by phonetic changes in one or both of the constituents; such, for example, as that which takes place in the stem-vowel in the Latin verbs: *legere*, *colligere*, etc.; or the grammatical sign of the first constituent word is dropped. The first member of a compound word, whether noun or verb, usually occurs in its stem form, and where necessary with the copulative vowel; the second member alone takes the gender or nominative sign. Occasionally, however, the first member enters into combination with its grammatical endings affixed, so that the latter get thus intercalated between the two constituent members.

One of the constituents of a compound word represents the fundamental idea or basis of the conception; the second, the secondary idea by which the former is determined, modified, or limited. The former may be compared to the root of a word, and the latter to the grammatical affixes; with this difference, however, that the latter are chiefly suffixes, while in compound words the fundamental word is usually the last member; the qualifying word is consequently prefixed, *e. g.*, *bride-groom*, *glass-window*, and *window-glass*. In some Greek verbal nouns the reverse position of the constituent members is apparent, *e. g.*, φιλόλογος, etc. It was probably the oldest form of composition, but has almost wholly disappeared from written language, even from the Sanskrit. Curiously enough, it exists both in the spoken English, French, and German, *e. g.*, *breakfast*, *tire-botte*, *taugenichts*. This circumstance offers some interest in connection with the origin of affixes.



## II. Celtic Studies.

By H. EBEL.

## 1. ON DECLENSION IN IRISH.

**B**OPP'S sagacity has never been, perhaps, so brilliantly proved, as in the discovery that the whole of the aspirations and eclipses, by which the Modern Irish declension is apparently disfigured, are nothing else than the relics and results of the after-action of the old case-endings.<sup>11</sup> Zeuss' determination of the old forms of the article has confirmed this supposition in the most complete manner, as regards the *n* and the consonant aspirations; the *t* and *h* before vowels are, however, to be somewhat differently understood. After what Zeuss remarks (pp. 59 and 63),<sup>12</sup> we cannot help regarding the *h* as, in the beginning, a useless and arbitrary addition before vowel anlauts, which, at a later period, permanently fixed itself after vowel auslauts; the passage of *s* into *h* appears to be foreign to the Gaedhelic branch of the Celtic; in the dative plural, where *h* likewise appears before vowels, it is not *s*, but *b*, which has dropped off; for from *donabis*<sup>13</sup> the Modern Irish

<sup>11</sup> Die Celtischen Sprachen, etc. S. 22, *et seq.*

<sup>12</sup> (a) [The passages in Zeuss are as follows:—

P. 59: "H is not found as a radical in the Irish; and if in ancient MSS., besides the combinations *ph*, *th*, *ch*, the *h* is also seen alone, which only happens at the commencement of words, it is nothing more than a breathing prefixed to the initial vowel, as in the ancient Gaulish names: Hercynia, Helvii. This *h*, neither a radical nor a necessary letter, occurs, without any fixed rule, in one place, and is not found in another; as: *uile*, *huile* (all), Wb. fq.; *éula* (wise), Wb., *heulas* (wisdom), Sg. 209<sup>a</sup>; *au*, *háui* (descendants), Sg. 28<sup>a</sup> 30<sup>b</sup>; and so on. The ancient language knows nothing of that regular usage according to which the modern dialects, Irish and Gaelic, prefix the *h* in a hiatus to the initial vowel of a substantive following the forms of the article *na* (gen. sing. fem., and nom. and dat. plur.) or preposition ending in a vowel. We find, indeed, for example, *inna hírise* (of the faith), Sg. 209<sup>b</sup>, but also *inna idbairte* (of the offering), *inna indocbale* (of the glory), *inna anme* (of the soul), *na æcilse* (of the Church), Wb. 22<sup>c</sup> 22<sup>b</sup> 25<sup>c</sup> 27<sup>a</sup>; *na accobra* (the desires), Wb. 20<sup>c</sup>; *la Atacu* (with the men of Attica), Sg. 147<sup>a</sup>; *a oentu* (from unity), Wb. 26<sup>b</sup>; *aalbain* (from Scotland), Marian. Scot. ap. Pertz. 7, 481".

P. 63. "The *s* drops out by 'infection' in the ancient language.\* The more recent language, indeed, which expresses the aspirate in its primary state as a strong *s*, almost as *ss*, pronounces the same letter when mortified or 'infected' as *h*; but I think this *h* is of still more recent origin than the *h* in a hiatus between the article or a preposition and the initial vowel of a substantive following, of which *supra*. For the ancient Irish MSS. either mark the mortified *s*, like the *f*, by a dot [the *punctum delens*, used commonly in mediæval MSS. to mark a letter written by mistake, and to be omitted], or else omit it altogether".]

<sup>13</sup> [i. Read \**donabo* (from \**du-sannabo*). Ebel's hypothetical *donabis* is due to

\* ["Infection", or "mortification", as it is called by some grammarians. Dr. O'Donovan calls it "Aspiration"; which he defines thus: "Aspiration, a grammatical accident, the general use of which distinguishes the Irish, Gaelic, and other cognate dialects of the Celtic, from all other modern languages, may be defined as the changing of the radical sounds of the consonants from being stops of the breath to a sibilance, or, from a stronger to a weaker sibilance".—O'D., Gram. p. 39–40.

*dona* has been first developed through the Old Irish *donaib* or *donab*. On the other hand, we also frequently find the *t* (Zeuss, 55, 231, etc.)<sup>14</sup> after *n* in Old Irish, even where *d* should generally stand, before eclipsed *s*. Hence, we cannot look upon the *t* in the nominative of the article as a substitute for *s*, but must assume that it had preceded the *s* in the more ancient forms of the nominative, and afterwards remained when *s* dropped off. The Old Umbrian appears to afford a parallel to this: it never shows an *ns*, except instead of *nns* in *Palsans*, but either *nz* or *z* (*enze*=*onse*) or *s* (*neirhabas*). Accordingly, in the modern form of the language, this *t* is to be found wherever a vowel has dropped out from between *n* and *s*, equally whether the *s* belongs to the article (as in masc. *an tiasg*, the fish, instead of (*an(t)s iasg*), or the noun substantive (as in fem. *an tslat*, the rod,<sup>15</sup> instead of *an(t) slat*).<sup>16</sup> It is absent when *s* or another con-

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his theory that the O. Ir. dat. plur. sprang from an instrumental (Sansk. *-bhis*). But this theory is destroyed by the Gaulish inscription of Nîmes (*Revue Archéologique*, 1858, p. 44), in which Dr. Siegfried has recognized two datives plur.—viz., *mâtrepo namausikâbo* (matribus nemausicis), which are genuine descendants of the Indo-European datives plur. in *-bhis*, Sanskr. *-bhyas*, the *i* (*y*) being ejected as in Lat. *-bus*. In *donaib* the stem-vowel *a* has been weakened into *ai*.

<sup>14</sup> (b) [The passages in Zeuss are as follows:—

P. 55. "The form NT, also, occurs in forms of pronouns coalescing with the preposition *in*, but only when the preposition governs the accusative case: *inte* (= in eam, fem.) Sg. b<sup>a</sup>; *intesi* (gl. in ipsam) Sg. 199<sup>a</sup>, 209<sup>b</sup>; *intiu* (in eos) Sg. 7<sup>a</sup>, Ml. 21<sup>a</sup>. 28<sup>a</sup>. Thence we might expect for the other persons the forms: *intium* (= in me), *intiuinn* (= in nos), *intit* (= inte), *intib* (= in vos), *intis* (= in eum), which I have not met with in MSS. The harder form, *int*, of the article prevails before vowels in the sing. nom. of the masc. gender, in which, after the usual form of the article, *in*, the hard form of the consonants is retained. Therefore the harder form *nt* seems to contain in itself the signification of action (motion, in the preposition), of hardness of form and of the masculine gender; the softer *nd* that of the passive (rest, in the preposition) of softening [of the letter] and of the feminine gender. It is to be observed in addition, that the form of the article *int* prevails almost always (the form *ind* is very rarely found) before the softened, or, as it is called, the 'mortified' *s* in all the cases of the three genders in which *ind* occurs before vowels (e.g. in the Article); this is, however, to be compared with the fact, that even the particle *ind* in composition (in the ancient Gaulish *ande-*) becomes *int* before a softened or mortified *s* in the following word.]

P. 231. [Gen. sing. of the article, IN]. "IN, aspirating, before tenues and medials; IND before liquids, mortified consonants, and vowels. \* \* \* \* \* Instead of the regular IND the form INT also prevails before the mortified *s*, as before at p. 55 [extract, *supra*, note (13)], and here: *intsechtaightha* (gloss: "simulationis"), Ml. 31<sup>a</sup>; *fomam intsommai* (under a rich man's yoke), Ml. 27<sup>d</sup>.]

<sup>15</sup> The difference between *an tiasg* and *an tslat* is only graphic, as it is pronounced *an tlat*, and as in accurate writing in the Old Irish *s* is provided with a dot or left out, not only in this case but also after vowels.—Zeuss, 63.

<sup>16</sup> [ii. The *t* in the nom. sing. masc. of the Irish article has been since shown to be due to the law, pursuant to which, in Old Irish, *d* becomes *t* before aspirated *s*, *an tiasg*, in O. Ir. *intiasc*=an Old Celtic *san(d)as*=*éscas*, subsequently *indshêsc*=*intiasc*.]

sonant has dropped off; consequently, in the gen. and nom. plur. fem. *na slaithe*, instead of *nás slaithe*, in the nom. sing. masc. *an sruth*, the scholar, instead of *an(t)s sruth*; in the gen. plur. of both genders *na sruth*, *na slat*, instead of *nán sruth*, *nán slat*; in the dat. plur., *dona srothabh*, *dona slataibh*.

A third point in which Bopp's view undergoes a modification through the Old Irish forms, is the explanation of the nom. plur. masc., which in the Modern Irish is formed as in the fem. in *na* with *h* before vowels, and without alteration of the following consonants. Bopp thence concludes that in the Celtic the article, like the substantive, in the masc. plur. originally ended in *ás*; consequently, that *na* has been deformed out of *aná*s; but the Old Irish *ind*, or *in* with an aspiration following, together with the fem. masc., *inna* or *na*, show us that here also the masc. originally ended in a vowel as in almost all the Indo-European languages; consequently, that the modern *na* owes its existence to an inorganic extension of the accusative form, or fem. plur. form, as we can at once see in the Old Irish neutral plural *inna*, which leaves the consonants following unaffected.<sup>17</sup>

With the exception of these three points, the old forms confirm throughout Bopp's discovery, according to which the nomin. sing. masc., the gen. sing., and the nom. pl. fem., from their very origin ended in *s*; the gen. plur. in *n*; the gen. and dat. masc., and nom. and dat. fem. sing., in vowels.

The finding of the neuter, which has disappeared without leaving a trace in the New Celtic (*an* or *a* in the nominative and accusative singular, and the plural like the genitive), and of the accusative (replaced in the Modern Irish by the nominative), in the Old Irish forms *inn* (before consonants *in*) in the masculine and feminine singular, *inna* or *na* in the plural of all three genders,—and in which we can plainly recognize the original ending *-n* in the singular, and *-s* in the plural,—is an important enrichment of Celtic grammar.

I hazard no supposition as to the relation of the old forms with *i*, followed by *nt*, *nd*, *nn*, to the new with *a* and simple *n*; the vowels of the endings can only be determined through a comparison of the substantive-declension, to which we shall now proceed.

The philologist recognizes at first sight, in the first order (*Ordo Prior*) of Zeuss, a vocalic (or a consonantal changed into a vocalic) declension, in the second order (*Ordo Posterior*), consonantal stems; among the latter, the masculine and the feminine

<sup>17</sup> [See the author's further observations upon this subject, in his paper "On the Article in Modern Irish", p. 106.]



*n*-stems and nouns of relationship in *-thir* (=Sanskrit *-tar*) being especially evident, as had been already recognized and put forward by Pictet and Bopp. On the other hand, I cannot, from external and internal grounds, agree with both these masters in the distribution of the vocalic-stems.

If, for example, we compare the first paradigm or table of Zeuss with the second, his remark, that the first is external, and the second internal inflexion, is at once shown to be incorrect. We have only to take, instead of *ball*, a word with *e*—as, for example, *fer*, man—in order to at once see that the declension of *céle* (companion) does not at all differ in the main from that of *fer*, except that in the former a vowel preceded the dropped off ending, in the latter a consonant. The vowel of the original penultimate undergoes in both the same changes: nom. and acc. sing. and gen. plur. *céle*, like *fer*, gen. and voc. sing. and nom. plur. *céli*, as *fir*, dat. sing. *céliu* as *fiur*, acc. plur. *céliu* as *firu*: it is only in the dative plural that a slight difference occurs between *célib* and *feraið*. In short, I. is only a variety of II., and both are related to one another, like the Gothic *harjis* or *hairdeis* to *fisks*. Let us, therefore, assume for a moment that I. contains *ya*-stems, II., *a*-stems; there remain for III. *u* and *i*-stems. But a similar relation to that between I. and II. also occurs in the feminine between IV. and V., and the differences in the paradigm between *tuare* and *rainne* in the genitive singular, *tuari* and *ranna* in the nom. and acc. plur., are compensated by the secondary forms of the fifth, which we find under the examples gen. sing. *-a* and *-o*, nom. and acc. plur. *-e* and *-i*. We could here also assume in the fourth *yá*-stems, in the fifth *á*-stems, and have only to determine then what has become of the *i* or *î*-stems, in order to remove the objection which could be raised upon external grounds against such a division; for, if feminine *u*-stems are wanting, there is nothing remarkable in the circumstance. We shall again find the feminine *i*-stems under V.; the *î*-stems have, however, either become *ya* or *i*-stems. We find many stems, originally consonantal, changed into III. (exactly as in Latin in the *i*-declension): e.g., *áis*, *óis* (aetas) = Sanskrit *áyus*, gen. *aiisso*, *óesa*.<sup>18</sup> The feminine *nem*<sup>19</sup> (cælum) = Sanskrit *nabhas*, gen. *nime*,

<sup>18</sup> [iii. It is impossible to equate *áis* with *áyus*, final *s* being never retained in Irish, not even in the *ns*-stems.]

<sup>19</sup> [iv. *Nem* (also *nim*) was a fem. *i*-stem—not an *á*-stem—as we see from the Old Irish gen. plur. *nime* :—

Sén á Christ mo labrad  
a choimdiu secht *nime*.

“Bless, O Christ, my utterance,  
O Lord of seven heavens!”

Oingus cele Dé.]

according to V., reminds us of the Slavic forms mentioned in the *Zeitschrift für vergleichende Sprachforschung*, iv. 342: *voda* = Sanskrit *udan*, *gora* = ὄρος, *tīma* = Sanskrit *tamas*. If, accordingly, we designate the five series set up by Zeuss as: I. *b.* masculine and neutral *ya*-stems; I. *a.* masculine and neutral *a*-stems; II. masculine and neutral *i* and *u*-stems; III. *b.* feminine *yâ*-stems; III. *a.* feminine *â* and *i*-stems, we shall find that this classification will receive an external confirmation by a consideration of the words and suffixes which belong to the individual classes.

Most loan-words harmonize, in the most strikingly accurate manner, with their types in the declensions. Compare, for example the *a*-stems: *felsub* = philosophus, *ór* = aurum,<sup>20</sup> *angel* = angelus, *apstal* = apostolus, *epscop* = episcopus, *fial* = velum, *idol m.* = idolum, *ifurnn* = infernum, *salm* = psalmus, *tempul* = templum, together with the genitive *digaim* = digammi, *metir* = metri; the *â*-stems: (*almsin*?<sup>21</sup> = eleemosyna, *epistil*? = epistola) *persan* = persona, *riagol riagul* = regula, *pian* = pœna, *fedb* = vidua (no doubt borrowed?) *liter* = litera, *sillab* = syllaba; those in *ia* and *iâ*: the masculine *notaire*, *rectaire*, *tablaire*, the feminine *fellsube* = philosophia; those in *i*: the masculine *fáith* = vates; in *u*: the masculine *fers* = versus, *sens* = sensus, *spirut* (gen. *spirito*, *spiruto*) = spiritus. Proper names follow the same rule, such as *róm*, fem. = Roma, *román*, mas. = Romanus, *tít* = titus, *tiamthe* = Timotheus, *grec* = Græcus, although I. *a.* has here embraced rather more, as the dat. *aeneus*, gen. *adim*, *Socrait*, *Aristotil*, show.

The forms of the cognate languages afford a further confirmation, and here and there also traditional Gaulish words. *Fer* (stem *fira*) corresponds to the Sanskrit *vīra* still more accurately than the Latin *vir* and Gothic *vair* (instead of *vir* stem *vīra*);<sup>22</sup> the adjective *fír* to the Latin *verus* (compare *ríg*<sup>23</sup> = Latin *rex*); *óin óen* to the Latin *unus*; *marb* to the Latin *mortuus* (*b* = *tv*);<sup>24</sup> *fescor fescar*, masc. the Lithuanian *vakaras*, Latin *vesper*; *bran*, raven, to the Slavonian *vranŭ*, Lithuanian *varnas* (Sanskrit *varna*); *rún* fem. to the Gothic *runa*; *dia* masc., the anomaly of which is only apparent, to the Latin *Deus* (instead of *Dēus* = Sanskrit *dēva*); *ferc* fem. probably to the Greek ὄρυγή; *tuath* fem. to the Oscan *tovto*,

<sup>20</sup> [v. *ór* is even found with the *n* of the neuter termination in the nom. sing. *ór nglan* (pure gold), where *ór n* is exactly the Greek ἀὐρὸν.]

<sup>21</sup> [vi. Rectè *almsan*: *epistil* is right—the *i* in the last syllable being due to progressive assimilation—a phenomenon which Irish exhibits in common with Finnish and Magyar.]

<sup>22</sup> The Lithuanian form *wyras*, and the rarity of the Latin *i*, instead of *a*, before *r*, speaks more in favour of *vīra* than of *vara*.

<sup>23</sup> [vii. Rectè *rí* = Gaulish *rīr*, a *g*-stem.]

<sup>24</sup> [viii. The *b* in *marb*, now *marbh*, is a *v.* *marb* = \**marva*, Welsh, *marw*.]

Umbrian *toto*; *anim*, fem., from which several cases are formed according to III. *a*. (Zeitschrift f. vergl. Sp. vi. 213), and which corresponds in these to the Latin *anima*; *lán* to the Latin *plenus* (see *supra*); *colum* to the Latin *columba*;<sup>25</sup> *ardd*, no doubt, to the Latin *arduus*; *nú*<sup>26</sup> to the Latin *novus*=Sanskrit *nava*, on the other hand, *nue* is related to the Gothic *niujis*=Sanskrit *navya*; *aille* to the Latin *alius*; consequently we may refer *uile* to Gothic *alls* by assimilation from *lj*: the neuter *críde* represents exactly the Sanskrit *hrdaya* (less accurately the Greek *καρδία*), *tréde* neut. (the Trinity) the Sanskrit *tritaya*; *muir* shows itself by the Gaulish *mori-* to be an *i*-stem, which, notwithstanding small deviations, the Latin *mare*, Slav. *more*, Gothic *marei*, confirm; *mug* (servus) appears to be identical with the Gothic *magus* (puer), and consequently an *u*-stem; *fid* neut. (arbor) resembles the Old Saxon *widu*, Anglo-Saxon *wudu*, Old High German *witu* (Old Norse masc. *viðr*), and besides has been determined by the Gaulish *vidu* to be a *u*-stem, like *cath* (pugna), *bith* (mundus) by the Gaulish *catu-*, *bitu-*; the fem. *sét* (dat. *séit*, pl. *seúit*) *via* = Gothic *sinþs*, like *dét* (dat. *déit* = Lat. *dens*), fluctuates between *i*- and a consonantal declension; finally the double forms *ben* and *ban* (mulier) may be explained either from \**gvina*<sup>27</sup> (= Gothic *gvinô*) and \**gvano* (= Greek *γυνή*, Beot. *βάνα*) or from \**gvani* (= Sanskrit *jani*) and \**gvana* (exactly as the Slav. *žena* can have been formed from *žana* or *žina*).

But if we considered these agreements as merely accidental, so much the more would the identity of the suffixes gain in authority. The adjectives come almost without exception under the classes I. *a*. and *b*. in masc. and neut. III. *a*. and *b*. in femin., consequently to *a*- and *yá*-stems, which in all the Indo-European languages are most numerous. The superlatives end in *-em*, of which I have found no inflexions in Zeuss, and are probably derived from *ima*, or *am*, certainly from *-ama*, which is inflected according to I. *a*. Of the adjectives the fem. abstracts in *-e* are very generally formed according to III. *b*., which corresponds to the Sanskrit *yá*, Lat. *-ia*, Greek *-ia*, Old High Germ. *-î*, Middle High German *-e*, e.g., *amprome* (improbitas) from *amprom*, *sulbaire* (eloquentia) from *sulber*, *dóire* (miseria) from *dóir*, *soire* (nobilitas) from *sóir*, *fírinne* (justitia) from *fírian*, *luinde*, bitterness, from *lond*, *nóibe* (sanctitas) from *nóib*, etc. Among the masc. in *-e* (I. *b*.) the words in *-ire* or *-aire*, corresponding to the Slav. *-arĭ*,

<sup>25</sup> [ix. *Colum* (rectè *colomb*), gen. *coluimb*, is a masc. *a*-stem, not fem. like *columba*.]

<sup>26</sup> [x. Rectè *núa*. The nom. plur. of *sét* (see below) has the masc. article in Zeuss, p. 237.]

<sup>27</sup> [All words to which an asterisk is prefixed are hypothetical.]



as *echire*, *echaire* (mulio), and many loan-words (from the Lat. *-arius*) single themselves out; among the adjectives those in *-de* = Sanskrit *-tya*, only of wider usage, e.g. *nemde* (coelestis), *talmande* (terrestris), *colnide* (carnalis), etc.; the Sanskrit *-taya* occurs in the numeral adjectives *déde*, *tréde* corresponding also in gender to the Sanskrit *tritaya*, *catushtaya*. We must, therefore, accordingly compare the modern fem. in *-mhuin*, as produced from the older *-maine*, not with the Sanskrit neuter in *-man*, but with the Latin fem. in *-monia* (*seachmuin* = *sechtmaine*, consequently not accurately expressing the Lat. *septimana*), especially as even the Old Irish sometimes exhibits retrenchment, as *testemin*, *festimin* stands by the side of the Lat. *testimonium*, the neut. *aill* by that of the mas. *aile* = *alius*.

The verbal substantives, which take the place of the infinitive, are particularly interesting. Those of them that apparently contain the naked root, as *cumang* (posse, potentia), *fulang* (tolerare), may be recognized by their declension according to I. a., as *a*-stems, to which the Sanskrit gerund in *-am*, and the locative in *-é*, with which the Indian grammarians clothe the roots, are parallel. Pictet (De l'affinité des Langues Celtiques avec le Sanskrit, p. 161) compares the infinitive in *t*, *th*, *d*, *dh*, with the Sanskrit *-tum*; rather with the Slavonic *-ti*, because of the form *tinn*; we find among the suffixes in Pictet, the Irish *adh* compared with the Sanskrit *-athu*. We shall become acquainted with *tinn* further on under consonantal declension; the Old Irish supplies us information about the other forms. Here *-ad* and *-ud* follow the second kind of inflexion, *-t* the third; we are consequently the more entitled to presuppose in those *u*-stems (like the Lat. *-tus*, from which the supine, Sanskrit *-tu*, from which the infinitive and gerund *-tum*, *-tvá*), as, according to the latest statements of Schleicher (Beiträge, I. 27), even the Slavonic infinitive in *-ti* belongs to this formation; on the other hand, the feminine forms in *-t* (according to III. a.) are not to be separated from the feminine abstracts in Sanskrit *-ti*, Greek *-τή* (*σῆ*), Lat. *-ti* (*si*), Gothic *-ti*, *þi*, *di*. The feminine in *-ál* (III. a.) remind us of the peculiar Slavonic participles in *-lŭ*; but it would be difficult to decide whether *-á* or *-i* has dropped off in them. The feminine in *-em* are *a*-stems, which correspond to the Greek verbal-nouns in *-μῆ*; the masculine in *-am*, *-om*, *-um*, remain obscure to me. Finally, *-ent*, *-end*, according to I. a., I consider to be borrowed, a supposition to which the forms *legend*, *scribend*, already point. The masculine in *-id*, gen. *-ada*, in which Zeuss, p. 766, suspected an original *-at*, also deserves to be mentioned; the proper stem-ending is *-ati*, absolutely like the Sanskrit *-ti*, Greek *τι* (in

μάντις), only differently employed, as it appears in the Irish, as a taddhita suffix.<sup>28</sup> The part. perf. pass. appears to make the only exception to this regular correspondence with the cognate languages: they do not end in *-th* or *-d*, according to I. a., as the analogy with the Sanskrit, Greek, Latin, and Gothic would lead to, but in *-the*, according to I. b.; but the original form still lies before us in the preterite passive of the impersonal conjugation (sing. *-d*, plur. *-tha*); we have consequently to distinguish in the ordinary form an addition (*-ya* or *-aya*) like as in the Old Welsh *-etic*. On the other hand, the part. fut. pass. *-thi*, properly *-thí*, accurately links itself to the Sanskrit *-tavya*, Greek *-τέος* (Lat. *-tīvus*).

If, finally, we compare the forms of the article, which, according to Bopp's view, also belong to an *a*-stem, and exactly agree with an *a*-stem in the distinguishing cases, gen. sing. and nom. pl. masc., there will be found sufficient external grounds to justify our division. We shall now pass to the inner characteristics which exist in the Irish phonetic relations, in order to develop and explain, as far as possible, the individual forms.

The Irish vocal system exhibits two very close points of contact with the German, the umlaut or obscuring of an *a* by *i* and *u*, and the fracture of an *i* and *u* by *a*. In reference to the first, it is particularly remarkable that the three kinds of assimilation of the *a* before *i* and *u*, which we generally find separated in different languages and language-periods (complete assimilation as in the Sanskrit *giri* and *guru*, diphthongation as in the Zend, *pairi* and *pauru*, umlaut proper as in the Old Norse *hendi* and *hönd*), appear here side by side; thus the well-known particle *ar* is written *air*-, *ir*-, *er*- [and *aur*-]; the accusative plural of *ball*, at one time *bullu*, at another *baullu*; *rolaumur* (*audeo*) also *rolomur*. As umlauts of *a* there consequently occur:—1, *ai* or *i*, seldomer *e*; 2, *au* or *u*, seldomer *o*; inversely *i* changes into *e*, *o* into *u*, under the influence of an *a* following, as in the Old High German; thus, for example, in the gen. *feda*, *moga* from *fid*, *mug*. We may see how far the last law has extended itself, from the fact that it has even invaded foreign names, as *etal*=Italia; but when Zeuss ascribes the same influence to a succeeding *o* and *u*, it should be considered that *o* and *a* often interchange, as in the gen. *etha* or *etho* from *ith*, where the *e* owes its origin rather to the *a* than to the *o*; but, on the other hand, *o* and *e* arise from simple weakening—namely, before double consonants, so probably also in *felsub*=philosophus.<sup>29</sup> We can just as little recognize an umlaut of the

<sup>28</sup> [So the Indian grammarians call the secondary suffixes.]

<sup>29</sup> [xi. Here Zeuss seems right and Ebel wrong. Thus for the breaking of *i* into *e* by *o* :

*e* into *i*, for where we have reason to consider *e* as primitive, there is produced by a succeeding *i* or *u*, not *i* or *iu*, but *ei* or *eu*, for example, in the plural *geinti* (gentes) in the dat. *neurt*, from *nert* (virtus, valor).<sup>30</sup> Zeuss has proceeded in a one-sided manner, inasmuch as he has everywhere taken the vowel which appears in the nominative as the primitive one; while, in cases like *nime*, *giun*, it is rather the *i* changed into *e* by *a* that again appears. On the other hand, it must be admitted that umlaut may produce an *e* not derived from *i*, as in gen. *rainne* from *rann* (pars). According to this, the rule for the Old Irish (we pass over here the vowel changes in the Modern Irish, and slight deviations, such as *oi* for *ai*, *ea*, *eo*, for *ao*) may be expressed somewhat as follows: under the influence of a succeeding *a*, *i* changes itself into *e*, *u* into *o*; under that of a succeeding *i* (exceptionally also an *e*), *a* into *i* or *ia* (or *e*), *e* into *ei*, *u* into *ui*, *o* into *oi*; finally, under that of a succeeding *u*, *a* into *u* or *au* (or *o*), *i* into *iu*, *e* into *eu*. It is unnecessary to observe that the factor very often disappears, and the fact remains, so that, just as in German, we can determine by the vowel-changes in the stem the vowel of the ending, a circumstance of so much the more importance, as will soon appear, because, even in its oldest form, it is much more weakened in the auslauts than, for instance, the Gothic.

If we apply the rule just given to determine the vowels of these endings, we obtain, in the first instance, for the masculine and neuter, according to I., the following endings:—

Sing. Nom.	-(a)s, -(a)n	.	.	Plur.	-i, -ā
Acc.	-(a)n	.	.		-ā, -ā
Gen.	-i	.	.		-an
Dat.	-u	.	.		-abis <sup>31</sup>

Examples: *ball* (membrum) *ball*, *baill*, *baull* or *bull*, *baill ballaib* or *ballib*; *fer* (vir), *fer*, *fir*, *fiur*, *fir*, *firu*, *fer*, *ferai*;

Bretan=Brito (Book of Armagh); lenomnaib (litoris), Zeuss, 739, compare Lat. *lino*; lebor from liber (Zeuss, 744); senod (Cormac), from synodus (*y=i*) *cenel*=*ceneth(o)*=Old Welsh *cenitl*.

And for the breaking of *i* into *e* by *u*:—*trebun* from *tribunus* (Zeuss, 198), *screpul* (Cormac) from *scripulum*, *cercol* (Zeuss, 594) from *circulus*. But the last instance is perhaps an example of the power of *o*; and as to *screpul* (*scripul* in Zeuss), we have unfortunately no MS. of Cormac in which the spelling can be relied on.]

<sup>30</sup> [xii. *E* seems changed into *i* by a succeeding *i* in the following instances:—Aristotil (gen. sing.), Zeuss, 887, *magistir*, nom. pl. of *magister*, Zeuss, 1057, *heritic* (=haeretici) Zeuss, 1055.]

<sup>31</sup> [xiii. Regarding the remarks in notes 13 and 29, the hypothetical endings for the masc. and neut. may be set down as follows:

Sing. nom.	. . . os, on	Plur. i, ā
acc.	. . . on	ūs, ā
dat.	. . . u	ābo (abo?)
gen.	. . . i	ān

and these agree with the Gaulish endings of the *a*-declension, so far as they have been established.]



neuter, *imned* (tribulatio), pl. *imnetha imneda*. We recognize here distinctly the *a*-stem *balla*, *fera* instead of *fira*, *imnetha* instead of *imnitha*; *fira* harmonizes in a remarkably beautiful manner with the Gothic and Latin stem *vira* (for *vair* indicates a previous short *i*) in opposition to the Sanskrit *vîra*. The feminine *a*-stems lead back to:—

Sing. Nom.	-a	.	.	Plur.	-ās
Acc.	-an	.	.		-ās
Gen.	-ē(s) or -(ā)s	.	.		-an
Dat.	-i or e	.	.		-abis

Examples: *nem* (heaven), *nem*, *nime*, *nim* (stem *nimā*, hence the nom. *nim* is still found singly); *delb* (effigies), *delb*, *delbe*, *deilb*, plur. *delbæ* (instead of *delba*), gen. *delb*, dat. *delbaib*, with primitive *e*, therefore it is in the dative not *dilb*, but *deilb*. The masculine stems, according to III., exhibit, in the immediately preceding stage approximately the following forms:—

Sing. Nom.	(-is or -us)	.	.	Plur.	-ā(s), -ē(s), ī(s)
Acc.	(-in or -un)	.	.		-ū -ī
Gen.	ā(s) or ō(s)	.	.		-ē(n)
Dat.	u ? or -i ?	.	.		-ibis (-abis ?)

Examples: nom. *dénmid* (doer) instead of *dénmadis*, gen. *denmada*; nom. *bíth* (world), dat. *biuth* instead of *bithu*; *gním* (action) acc. plur. *gnimu*; *aitribthid* (possessor), gen. *aitrebthado*, nom. acc. plur. *aitribthidi*.

It is easily seen that the forms which may be most readily linked, do not admit, in any way, of a direct comparison with the primitive forms, as the Gothic, to a certain extent, do, but still require an intermediate stage to connect them. A *balli* *ballû*, or *ballui*, must necessarily have preceded *balli*, *ballu*, assumed from *baill*, *baull*, a *nimā* the *nima*, deduced from *nem*, a *firûs* (or *firûn* ?) the *firû* changed into *firu*, a *firân*, the hypothetical *firan* in the gen. pl. In short, the oldest historical forms of the Irish, in regard to the conservation of the auslaut, stand, at most, and even scarcely, upon a level with the New High German,<sup>22</sup> as the simple comparison of the Irish and the German *ball* may show:—

Sing.	{ Irish, . . .	Nom. ball,	Acc. ball,	Gen. baill,	Dat. baull.
	{ German, . . .	ball,	ball,	ball(e)s,	ball(e).
Plur.	{ Irish, . . .	baill,	baullu,	ball,	ballaib.
	{ German, . . .	bälle,	bälle,	bälle,	bällen.

We find that long vowels have disappeared in the auslaut often even with succeeding consonants; equally so, short vowels, with succeeding *s*; only long vowels before *s* have preserved

<sup>22</sup> [xiv. Ebel would not now say this. See his paper *infra* "On the so-called prosthetic n", p. 108.]

themselves in the shortening: [forms such as *céle* (*socius*), consequently presuppose either a *célias*, *céleas*, with a fallen off end-syllable, or a *célès* with a shortening of the vowel before the fallen off *s*; we shall more correctly explain *fíru* from *fírús* than from *fírún*, as we everywhere [except in the article and *teora n*] see that the long vowel in the genitive plural has disappeared along with the *n*]. We could not, in the midst of such mutilation of the original endings, venture to think of anything like a satisfactory development of the case-endings, were it not that fortunately the above-mentioned law for the vocalism, and the changing of the consonants between the article and substantive, puts into our hands a means of discovery.

The end-consonants, except *m* and *r*, have evidently all disappeared; *m* is changed, according to rule, into *n*, only traces of which have, nevertheless, been preserved;<sup>33</sup> *s* no longer occurs at the end; *t*, which appears in its place in the Old Irish as *int*, and in the Modern Irish *an t*, shows us that it has only disappeared in the immediately preceding period, only after the dropping out of the short vowel. *The Gaedhelic has, consequently, become harder than the Gothic, in so far that, besides s and r, it also suffered an n in its auslaut, probably derived, however, from m, and not from a primitive n.*<sup>34</sup> Of these three consonants, *s* was the first which dropped off, for it does not appear in any declension or conjugation-ending; not even in the article, where, however, its former existence is betrayed by the *t* in the nom. INT *ant*, and by the conservation of the original anlaut after the form INNA *na*; the second that dropped off was the *n* derived from *m*, which is still visible at least in the article in the acc. INN, and in gen. plur. INNAN *nan* (besides here and there also, e.g. in *teora nígutte*, Zeuss. 310); *r* has preserved itself to the present day in the nominative ATHIR *athair* (*pater*).

The mutilations of the auslaut appear to have taken place in this wise; in the first place the short vowels in the auslaut and before consonants were dropped, the long ones in the auslaut shortened, then (or also contemporaneously, a supposition to which the Lat. *-um*, instead of *-ûm*, would lead us) the long vowel before *n* shortened, hereupon *s* dropped, finally the long vowel was again shortened, and the short vowel together with *n* dropped. From the primitive Gaedhelic to the Gaedhelic of the oldest monuments, we would have, consequently, to presuppose three or four periods, which may be represented by an example, somewhat in the following manner:—

<sup>33</sup> [xiv. See the last mentioned paper.]

<sup>34</sup> [See on this passage the author's paper on "The so-called prosthetic *n*," p. 108.]

	<i>Primitive period.</i>	<i>Pre-historic period.</i>	<i>Historic period.</i>
Sing. Nom. . . .	ballas,	balls,	ball.
Acc. . . .	ballan,	balln,	ball.
Gen. . . .	ballt,	balli,	baill.
Dat. . . .	ballui, (ballú ?)	ballu,	baull.
Plur. Nom. . . .	balli,	balli,	baill.
Acc. . . .	ballús,	ballú,	baullu.
Gen. . . .	ballân,	ballan,	ball.
Dat. . . .	ballabis,	ball(a)bis,	ball(a)ib.

Still later weakenings of the auslaut sometimes occur, as the Old Gaedhelic shows in neut. *aill* from *aile* (similar to the Old Latin *alid*); the Old Kymric especially distinguishes itself from the Gaedhelic by greater weakenings, *e. g.* as *all* (*alius*) and *oll* (*omnis*), instead of the Gaedhelic *aile* and *uile*. The adjective in the Welsh exhibits an interesting difference, inasmuch as here the change of *i* and *u* into *e* and *o* first takes place in the feminine, hence a fem. *gwen*, *cron* is opposed to the mas. *gwyn* (*albus*) *crwn* (*rotundus*). We may consequently presume that in the Welsh the fracture was only introduced when the short end-vowels were thrown off, consequently *crunnas* *crunnâ* were already become *crunn(s)* *crunna*, whilst, in the Gaedhelic, the falling off only followed the introduction of the fracture.

Now only are we in a position to attempt an explanation of the endings; but, in consequence of the extremely difficult *i*- and *u*-stems, we shall begin with the declension of the consonantal stems. We find in Zeuss five classes (not exactly in the most convenient order), of which I. and II. contain *n*-stems, III. and V. *r*-stems, IV. *d*-stems;<sup>35</sup> of these *d* appears to have arisen out of *t*. The inflexion is most regular in the masculine-feminine *n*-stems (II.), and in the masculine *d*-stems (IV.). Both subdivide themselves according to the vowel of the genitive into two divisions, in which we recognize, according to the phonetic laws of the Irish, stems with *a* and with *i*; those in *-man* may be compared with the Sanskrit *-man*, *-iman*, *-van*, and with the Greek *-μῶν* (compare *brithem* judge and ἡγεμῶν); those in *-tin* or *-sin* are, in a similar way, as in the Umbrian and Oscan, shortened from *-tian*, which again appears in the nom. *-tiu*, and consequently express the Lat. *-tio*, *-tionis*, with which they also agree in gender; the infinitive use of these abstracts (comp. Zeuss, 462) explains the infinitives in *-tinn*, *-sinn* of the present language, which consequently do not at all directly agree with those in *-t* and *-dh*; probably a similar

<sup>35</sup> [xv. Zeuss' series V. contains *c*-stems (or rather *i*-stems, which, in the oblique cases, go over to the *c*-declension), and under his fourth series he has put *d*-stems, *t*-stems, and *ant*-stems. Among his irregular nouns he gives *rí*, gen. *ríg*, the sole example of an Irish *g*-stem. *Mí*: (a month) gen. *mís*, is a *ns*-stem. So were the comparatives in *iu*, Sanskrit *iyāns*, though undeclined in the oldest Irish.]



contraction of the stem lies at the basis of those in *-id*, because in the nominative along with *ogi* (hospes), *fili* (poëta), *tene* (ignis), the fuller form *cóimdiu* (dominus) shows itself. Analysis yields the common endings:—

Sing. Nom. (long vowel)	.	.	.	Plur. <i>-is</i>
Ac. <i>-in</i> ( <i>-en</i> )	.	.	.	<i>-ás</i>
Gen. <i>-as</i>	.	.	.	<i>-án</i> ( <i>-an</i> )
Dat. <i>-i</i>	.	.	.	<i>-abís</i>

Which explain themselves without difficulty. The length in the accusative plural is remarkable; it is proved by *anmana* (animas), *fileda* (poëtas). As a change into the vowel-declension (like in the Latin *-és, -eis, -is*) in consequence of the *a*, in opposition to the *-u* or *-i*, which alone occurs in masc. vocalic stems, is not to be thought of, this *-á* must be either an inorganic lengthening, or *-ás* has been produced from *-ans*, which has been already surmised to be the original ending of the accusative plural (Zeitschrift f. v. Sprachforschung I. 291, V. 63); the latter is no doubt the true explanation. Among the other endings, *-as* exhibits the peculiar tones of the Gaedhelic vocalismus, whilst, for, instance, the Greek, Latin, and Gothic agree in the weakening of the *a* in the genitive *-oc, -us, -is, -is*, and in the Gothic even the nom. plur. *-as* remains pure, the Gaedhelic, on the other hand, in direct antithesis to the Gothic, has retained the genitive pure,—hence *menman, noiden, druad, coimded*, instead of *menmanas, noidinas, druadas, coimdidas*, and has weakened the nom. plur. to *-is* (or *-es* like Greek *-εs*?) consequently forming *anmin, aisndisin, druid, filid*. The accusative singular with its *-in* or (*-en*) may be compared with the Lat. *-em*,—in the Zend, even with *a*-stems, *ēm*,—hence *menmain* (for which also *menmuin* and *menmin*), *airitin, torbataid* or *-tid, coimdid*. The genitive plural has naturally, in the first instance, shortened its *-án* to *an*, and then dropped it; the dative singular may, no doubt, be referred as in the Greek and Gothic to the original locative. By the dropping off of the endings and the influence of the end-vowels, the gen. sing. and plur. on the one side, and the acc. and dat. sing. and nom. plur. on the other, must have become alike in sound. The dat. plur. took up a copulative vowel, as in the Latin and Gothic, an *a*, which by the influence of the dropped *i* has become *ai* or *i*; before this *-aib, -ib* syncope frequently occurred as before the *-a* of the accusative plural, e.g. in *traighib* (pedibus) always as it appears in the feminines in *-tiu*, the *i* of which, however, had acted upon the succeeding vowel; hence dat. *-tnib*, acc. *-tnea* or *tne*. Zeuss' supposition of an accusative plural *\*druida*, for which we might expect *\*druada*, appears, however, to be erroneous.<sup>36</sup> We meet with various forms

<sup>36</sup> [xvi. *Druide* is the acc. pl. in the Liber Hymnorum. This may perhaps

in the nom. sing. of *an*-stems e.g.: masc. *menme* (mens), masc. *brithem* (judex) fem. *anim* (anima), fem. *talam* (terra); of the feminine *in*-stems passing into *iu*, sometimes weakened into *-u*; of the masc. *ad*-stems as a rule weakened to *-u*, and in *tenge* (lingua) to *e*; of *-id* generally *-i*, also, however, *-iu* in *coimdiu* (Dominus), *-u* in *dinu* (agna), and the adjective *bibdu* (guilty), *-e* in *tene* (ignis), gen. *tened*, stem *tenid* (instead of *tanid* as the Kymric *tan* shows); no ending in *traig* (pes). The form *druith* (druida),<sup>37</sup> from the stem *druad*, appears to depend upon the same transition into the *i*-declension as Lat. *canis*, *juvenis*, from the stem *can*, *juven*; for *druith* refers back to *\*druadis*. According to the analogy of the Sanskrit, the *an*-stems ought to form the nom. *-â*, which, in the first instance weakened to *a*, then fell off; *brithem*, *anim*, are, consequently, forms perfectly in accordance with rule. The preservation of the vowel in *menme*, weakened, however, to *e*, appears to have been caused by the double consonants (as, perhaps, also in the gen. pl. *athre*, from *athir*, see further on). The *-iu* of the *in*-stems has arisen from the primitive *-iâ* (by *-ia* or through *iû*; the Lat. *-io*, Umbrian *-iu* speaks in favour of the latter), the *u* having been retained probably by means of the preceding vowel as in the dative *céliu*, as opposed to *baull*. The *d*- or *t*-stems took originally, as in the Lat. and Greek an *s*, lengthened the vowel before it as compensation for the *t*, and retained the shortened vowel after the dropping off of the *s*; e. g. *\*domnats* (*domnâs*) *\*domnûs*, *\*domnû*, *domnu* (profunditas). Or *-ad* was originally long, as contractions are often found in the Gaedhelic, for example, in the adjectives in *-ach* = Kymric *auc*, *awc* (i. e. *âc*)? In *coimdid*, together with *coimdiu*, a contraction of the stem may be assumed as the Welsh masc. in *-iat* (*-iad*, pl. *-ieid*), given by Zeuss (p. 806) comes very near. *Guiliat* (qui videt) appears nearly to correspond to the Gaedhelic *filid*,<sup>38</sup> the nom. *fili* would, consequently, be contracted from *filiu*, for which the dative *duini* together with *duiniu* affords an analogy.<sup>39</sup> *Traig* shows itself to be a *t*-stem by Welsh *troet*, pl. *traet*; Cornish *troys*, pl. *troyes*, *treys*; Armorican *troad*, pl. *treid*; but the nom. sing. *traig* and

have arisen, by progressive umlaut, from *\*druadi*, if *druí* (like *bráthair*) have passed over to the *i*-declension. The acc. pl. *bráithre* occurs in the epilogue to the Féilire (609).]

<sup>37</sup> [xvii. Ebel has here been misled by Zeuss: *druith* is the nom. *dual*, not the nom. *singular*, which must have been *druí* (= *\*drua(d)-s*.)]

<sup>38</sup> [See "Additions to the Article on Declension", p. 110].

<sup>39</sup> Zeuss, 755, considers the *d* as primitive, and compares the Kymric *-ed*, *-id*, p. 803; but, in my opinion, the masculine in *-id* ought rather to be compared with the Gaedhelic in *-id*, *-aid*, gen. *-ada*, and the Kymric *-d* (now *-dd*); although ancient, it is not primitive (compare Lat. *lapid*, Greek *ἐλπίδ*, *κορυθ*, Zeitschr. f. v. Sp. iv., 325, 332).

accus. plur. *traigid* are difficult to explain: the best way is, no doubt, by the assumption of a neuter (Zeuss, 274), by which the want of the ending would be justified; but the *i* in *traigid* is remarkable: we should have expected \**traigidâ*, \**traigeda*, *traiged*. Deviations of a different kind will be treated of hereafter; as regards *cú* (canis), whereof only the comp. *banchu* (bitch), and the derivative *conde* (caninus), occur in Zeuss, we may ascribe to the Old Irish the forms: acc. *cuin*, gen. *con*, dat. *cuin*; plur. nom. *cuin*, ac. *cona*, gen. *con*, dat. *conaib*.<sup>40</sup> The neutral *n*-stems (I.) all derived with the suffix *-man* deviate from the anticipated scheme:—

Sing. Nom. and Acc.	<i>-m</i>	.	.	Plur.	<i>-man</i> (from <i>-maná</i> , <i>mana</i> )
Gen.	* <i>-man</i>	.	.		<i>-man</i>
Dat.	* <i>-main</i>	.	.		<i>-manaib</i>

Independent of slight fluctuations between *a* and *e* (e.g. nom. plur. *ingramman*, gen. *ingremmen*) in the gen. and dat. sing., the dative exhibits an exceptional *m* instead of *n*: *anmim*, *anmain* (nomini), which appears to have arisen from assimilation; the gen. *anma*, *anmae*, *anme*, has dropped the *n*. The remaining forms are formed in a perfectly normal manner, but the nom. sing. appears to have weakened the *a* of the original end *-ma* to *i*, before it fell off, in consequence of the continuous occurrence of umlauts=*ainm* (nomen), *béim* (plaga), *ingreim* (persecutio), *teidm* (pestis), *togairm* (vocatio), *senim* (sonitus).

The nouns of relationship in *-thar* (III.) contain the original *á* of the nom. sing. weakened to *i*, either by the influence of the liquids (Bopp, p. 7), or, as it appears to me more probable, because the *á* weakened to *a* should have dropped out in the third period (as in *ballán*, *ballan*, *ball*); but this could not take place, in consequence of the unpronounceable double consonant thence resulting, and so at least the lightest vowel was chosen. The same reason caused, no doubt, the retention of the vowel in the gen. and dat. sing., the syncope of which was to be expected according to the analogy of other languages and of the plural cases (although a formation *atharas*, *athars*, *athar*, *athari*, *athir*, would not be impossible), and in the gen. plur. the retention of the ending-vowel in its weakened form *e*;<sup>41</sup> at least, there is no reason to assume for the Old Irish a transition into the *i*-declension which to be sure would easily explain the form *athre*, but which even the Latin *patrum* rejected. In the dative plural, *a*, and not *i*, is also used as a copulative vowel, as *athraib* shows,<sup>42</sup> and if *braithrib*

<sup>40</sup> [xviii. Rather thus: acc. *coin n*, gen. *con*, dat. *coin*; plur. nom. *coiñ*, acc. *cona*, gen. *con n*, dat. *conaib*.]

<sup>41</sup> [xix. This gen. plur. in *e* only occurs in *athre*, *bráithre*, and is certainly due to a passage over to the *i*-declension. *Máthair* forms its gen. plur. regularly—thus: *máthar n*.]

<sup>42</sup> [xx. In Gaulish *ē* was used as a copulative vowel, as is shown by *mátrēbo* (matribus), cited *suprà*. Note 12, p. 79.]



occurs side by side with it, we must either view it as an invasion of the secondary *i*, or an indication of the early introduction into Irish of orthographical confusion. The nom. plur. is not supported by evidence; we cannot put it down otherwise than as *athir*, as Zeuss does. On the other hand, there is no evidence to entitle us to assume with Zeuss an ending *-u* for the masc., as we have nowhere detected, except in the nom. *druith*, a transition into the vocalic declension. We accordingly assume the following genetic development:—

	<i>Primitive period</i>	<i>Pre-historic period.</i>	<i>Historic period.</i>
Sing. Nom. . . .	athâr	athar	athir
Acc. . . .	atharin	athirn	athir
Gen. . . .	athras	athras	athar
Dat. . . .	athri	athir	athir
Plur. Nom. . . .	atharis	athirs	*athir
Acc. . . .	athrâs	athrâ	*athra
Gen. . . .	athrân	athran	athre
Dat. . . .	athraibis	athraibs	athraib

The addition of a determinative suffix already shows itself in the Old Irish in some *r*-stems (V.); in the Modern Irish its action has been felt over a much wider circuit, and has even penetrated the nouns of relationship.<sup>43</sup> Unfortunately, too few forms of this class have been preserved to us to give a complete idea of the declension, nevertheless we see from the existing ones of *cathir* (oppidum):—

Sing. . . .	cathir, cathraig, cathrach, cathir.
Plur. . . .	cathraig.

—at least so much clearly, that these words, to which *nathir* (natrix) likewise belongs, with this suffix also followed a consonantal declension. Bopp's conjecture, adopted by Kuhn also, in his review (observation 15), that this *ch* (*g*) represents an original *k*, is now completely justified by the Irish phonetic law, according to which the tenuis between vowels changes into the aspirata (fluctuating into media); but to his comparison of the Gothic *brôthrahs* and the Sanskrit *-aka* may be added the still more apt one of the Greek *-κ* in γυνή γυναικός, like the opposite employment of the *c* in Latin, *senex*, *senectus*, along with *senis* (compare the essay of Curtius on individualizing suffixes in Zeit. f. v. Sp. Bd. iv.) The dative *cathir*, no doubt, likewise rests upon a similar muti-

<sup>43</sup> [xxi. This "determinative suffix" is a dream. The Old Irish nouns to which Ebel alludes (though *i*-stems in the nom. sing.), have, like γυνή, passed over to the *c*-declension in the oblique cases. There are, of course, *c*-stems in all cases. Thus *tethra*, gen. *tethrach* (a scald-crow), is the Greek τέτραξ, gen. τέτρακος. The gen., dat., and acc. pl. of *cathair* may be set down with certainty as *cathrach ñ*, *cathrachaið*, *cathracha*, respectively; for *huasalathrach* (patriarchum) occurs in St. Patrick's hymn (*Liber Hymnorum*), and *huasalathrachaið* (patriarchis) in Zeuss, p. 827 (the nom. sing. is *huasalathair*, cf. Ang.-Sax. *heah-fædher*), and *coercha* (sheep, acc. pl.) for *cáeracha*, in St. Brogan's hymn, v. 33.]

lation, as is frequently found among the *n*-stems, and should not have been placed by Zeuss in the paradigm; the normal form would be *cathrich* or *cathraich*, in the plur. acc. *cathracha*, gen. *cathrach*, dat. *cathrachaib* may be expected.

In its most ancient stage the Gaedhelic, consequently, harmonizes with the classic languages by the conservation of the consonant declension of the *t*-, *n*-, and *r*-stems; it even exceeds the Latin in the conservation of the purity of the nom. acc. and gen. plur.; on the other hand it associates itself to the Gothic by the passage of the *s*-stems into the vocalic declension, which takes place as in the Slavonic languages in two ways: by an addition in *áis*, *áisa*, contrasting with the Sanskrit *áyus*; by a loss in *nem* (*nima*) in contrast to the Sanskrit *nabhas*, with a change of gender, as in the Slavonic *třma*, against the Sanskrit *tamas*.

According to what has been said above, the vocalic declension includes masculine and neutral *a*-, *i*-, and *u*-stems, feminine *á*- and *i*- (*í*-) stems; feminine *u*-stems are wanting, as in the Lithuanian.

We have already carried back the inflexions of the masculine *a*-stems to the oldest attainable Celtic forms. The most of them scarcely require an observation. The nom. sing. *-as*, *-a*, *-an*, instead of *-am*, gen. plur. *-án* instead of *-ám*, agree exactly with the Sanskrit; the dative plural *-abis* presupposes a more ancient phonetic condition than we find preserved either in the Sanskrit instrumental *-áis* or in the dative *-ébhyas*, and which is easiest explained from the instrumental (primitive form *-abhis*), for the dative form *-abhyas* would have led (through *-abias* *-abeas*, or through *-abís* *-abí*, through *-abés* *-abé*) to *-abe* or *-aibi*.<sup>44</sup> (The *-ai* in *-aib* is not a diphthong but umlaut, as the secondary form *ib* shows; it is, consequently, not comparable with the Sanskrit *-éin* *-ébhyas*). The dat. sing. *-ui* (or *ú*? undoubtedly formed out of *-uí*) and the acc. plur. *-us* agree with the Lithuanian and Slavonian, being in the former *-ui* and *-us*, and in the latter *-u* and *-y*; the gen. sing. and nom. plur. *-í* agree with the Latin (besides the dat., Latin *-ó* from *-oi* = Oscan *-ui*). In the nominative plural the pronominal ending (Sanskrit *-é* = primitive *-ai*, Lithuanian *-ai*, Gothic *-ai*, Greek *oi*, Latin *í*, older form *-ei*, Slavonian *-i*), has, consequently, penetrated into the substantive declension in the Celtic also, as it does every where except in the Sanskrit, Gothic, Umbrian, and Oscan, and *indfir* (pronounced *indir*) from *inní firí* corresponds exactly with *illi viri*; this *í* has, consequently, been formed out of *-ai* or *-ei*. On the other hand, in the genitive singular, the most difficult form, the *-í* corresponds to the Latin *-í*, which, as

<sup>44</sup> [xxii. See note 12, p. 79.]

is well known, is written not *-ei*, but *-i* in Lucilius, and in S. C. de Bacc., an important circumstance for the correct explanation of the Latin form; as for the rest, the explanation is easier in the Irish than in the Latin. Of the primitive ending = Sanskrit *asya*, not only must *y*, which has everywhere fallen away, but also a vowel-flanked *s* have disappeared in the Irish (Zeuss, 60, 63); there, consequently, ensued *-iŭ* (as in *íth* = Kymric, *iot*, *icc* = Kymric *iace*) which naturally fused immediately into *í*; it only remains doubtful whether this *-á* also belongs to the Kymric or exclusively to the Gaedhelic.<sup>45</sup> The agreement of both forms with the Latin is, no doubt, the chief reason why the words borrowed from the Latin have mostly preserved, in so strikingly true a manner, the declension-type, and that transitions into this declension have only taken place from the third Latin one;—a change which the gen. *-is* induced, as, for example: *soeráit*, in consequence of *socratis* (even in the nom. *preceptóir*, plur. *preceptori*, in consequence of *preceptoris*), not the reverse, except where it was permitted to join a word to a known ending, as in *peccad* masc., gen. *pectha* *pectho* from *peccatum*, in consequence of the many words in *-ad* having similar meaning. The words in *-e*, sometimes written *-a*, and *ya-* (*ia-* and *aia-*) stems form a subdivision of the *a*-stems; in them either *-i* before *-a* was changed into *-e*, or *-ia* was forced into *-ê*, *-ii* into *-î*,—these long vowels being naturally shortened in the auslaut; all forms admit of being explained in both ways in the most perfectly satisfactory manner. The *-u* in the dat. sing. remained here in the combination *-iu* in the auslaut, for which, however, *-u* and *-i* also occur; in the dat. plur. a slight shortening took place, as *iib* did not give *-íb*, but *-ib*.<sup>46</sup>

The neuters exhibit a curious anomaly, inasmuch as the primitive *-á* of the nom. and acc. plur., shortened to *-a* in the second period, should have dropped off in the third; if we connect with *-a* of this case an analogous singular phenomenon, namely, that the *inna*, *na*, of the article, as in the feminine, does not affect the succeeding consonants, we shall be able to assume, with greater probability, that in the Gaedhelic the disappearance of the neuter, which in the Kymric can be no longer detected, had even already been prepared in the plural, by the invasion of the feminine form, for the *inna* of the article does not admit of being explained otherwise than from *innás*. The Irish *na cenéla* (nationes) consequently admits of being compared with the Italian *le arme*

<sup>45</sup> [xxiii. In the Old Irish, as in the Latin, the gen. sing. of masc. and neut. *a*-stems was originally the locative sing., and has nothing whatever to do with *asya*. Ebel is now inclined to admit this. See *Beiträge*, u. s. w. II. 186.]

<sup>46</sup> Zeuss erroneously remarks, page 248: quae *-ib* dativi non inficiens ex *-ab* defecisse videtur. The observation would have been in place at p. 253.



instead of *illa arma*. Even the accusative plural masculine *inna, na*, appears to rest upon an inorganic invasion of the feminine form, because the substantive forms lead us to expect rather *\*innu, \*nu* [conversely *-iu, (-u)* = Lat. *eos*, occurs suffixed to the prepositions, even as feminine]; this form has also penetrated even in the Modern Irish, from the accusative into the nominative, so that a difference of genders is nowhere to be found in the plural. The *-ia* stems form the plur. nom. regularly in *-e*, as in the singular.

The adjectives mostly follow the rule of the substantives, only that the *-ia*-stems readily shorten the acc. plur. mas. into *-i*, and the nom. plur. neuter often shows *-i* instead of the more normal *-e*. The *-i*, which the *a*-stems often exhibit in the neuter plural, is more remarkable, and is hitherto inexplicable to me.<sup>47</sup> A stem *sáinia*, instead of *sánia*, may probably be assumed for *sáin* (diversus), in consequence of the *ai*. This has maintained itself in the form of the nom. plur.; in the others it has shortened itself like *aile* into *aill*. But how are we to explain *isli, dilsí, comaicsí*? Of the pronominal *a*-stems, a form has, however, been preserved, in spite of the frightful ravages here occasioned by the phonetic laws, which sets aside the only reason which could probably be still put forward (except the accidental similarity with the stem-auslaut *a* in the Sanskrit) in favour of explaining the gen. *-a* of the following classes by the Sanskrit *-asya*. Of the stem *a*, there have been preserved: gen. sing. masc. and neut. *á*, with affection of the succeeding consonants, consequently primitively a vowel-ending stem; gen. fem. *á* without affection, consequently for *ás*; gen. pl. *an, a*, consequently produced from *án* instead of *ám*. Bopp therefore believed himself able to explain the masc. *á* by *asya*, and the fem. *á* (instead of *ás*) by *asyás*. But now *ái* appears as the most ancient form of the gen. sing. masc. and neut. (in Zeuss, 334, 345), besides *ae, e* (evidently *é*) also (Zeuss 347); consequently *asya* modified itself in the first instance into *ái*, and from thence issued the Gaedhelic forms *á* and *é* like the Kymric *y, e*. Even then this form, which in consequence of its shortness must sound fuller, differs very little from the usual genitive of the *a*-stems. The neuter of the article *an*, which has weakened itself even to *a*, rests no doubt on a fundamental form *anat*,<sup>48</sup> which from the outset must have become *ana, an*, be-

<sup>47</sup> [xxiv. Adjectival *a*-stems never exhibit *i* in the nom. pl. But (as was to be expected) this is done by adjectival *i*-stems, such as *sáin, ísil, dilsí, comaicsí*, whence *sáini, ísli, dilsí, comaicsí*. The adjectival *i*-declension exists at the present day. See the paradigm (*geanamhail*), O'Donovan's Grammar, p. 112.]

<sup>48</sup> [xxv. More probably the neut. article *an* (*a* before a noun beginning with a tenuis) stands for *sa-n*—the *n* being the neut. ending, and the *sa* the well-known pronominal stem. The *s* appears in composition with non-aspirating prepositions.

cause *anan* (instead of *anam*) must have always retained an *n*; the fundamental *-at* also explains the stronger shortening in the neut. *aill*, as compared with the masc. and fem. *aile*.<sup>49</sup>

The explanation of the case-endings is much more difficult in the following classes, where the separation of the masculine *u-* and *i-*, and the feminine *â-* and *i-*, stems, is already difficult.

The *i-* and *u-*stems sound in the nom. and acc. sing. perfectly alike, for *-is*, *-in*, *-i* must drop off like *-us*, *-un*, *-u*; even the vowel of the stem does not always give us information, although *dénmid* (factor), for example, proves itself by the genitive *denmada* to have been altered from *dénmad*, *muir* (mare) announces itself by its *ui* as an *i*-stem; we must, therefore, endeavour to study the stem much further, as, for instance, in *bith* (mundus), from the Gaulish *bitu*; in *fil* (arbor), from the Gaulish *vidu* and the Saxon *widu*; in the verbals in *-ad*, from the analogy of the Latin in *-tus*, etc. The only case which shows the stem clearly, the accusative plural,<sup>50</sup> the *-ûs* and *-îs* of which have changed into *-u* and *-i*, is unfortunately only very weakly represented, so that, in many cases, no certainty can be attained. In the dative singular *-ui* and *-î* are certainly to be assumed; these should become *-u* and *-i*, and leave behind umlaut, but most words take no umlaut (no doubt, in consequence of the primitive length of the stem-vowel). Among the whole of the examples in Zeuss, *biuth* alone shows umlaut, which he accordingly has placed in the paradigm. It would appear as if the endings *-a*, *-o*, *-e* established a difference in the genitive singular; but this is by no means the case, as *aithrebthado*, from the nom. *aithribthid* (possessor), for example, shows a decided *i*-stem; we must look upon *-o* rather as an obscuring of the *-a*, *e*, exactly as *-ea* and *-eo* are the result of the subsequent action of a preceding sound, or of one which had preceded. The explanation apparently nearest to hand, that *-o* is derived from *-aus* (=Sanskrit *-ós*), is, consequently, to be rejected, and we are to assume either that *-aus*, as well as *-ais*, has become *-a*, or, to start from the fundamental form, *-avas* and *-ajas*, which must likewise become *-âs*, *-a*; as the dative cannot be explained from *-avi*, *-aji*, the first hypothesis is, no doubt, to be preferred.<sup>51</sup> According to the analogy

<sup>49</sup> [For confirmation of this hypothesis see Ebel's paper "On the so-called prosthetic *n*", p. 108.]

<sup>50</sup> [xxvi. The nom. and acc. plur. (*-i*) and dat. plur. (*-ib*) of *i*-stems show the stem clearly enough. But Ebel here, as elsewhere, suffers from the incompleteness of Zeuss's collection of examples.]

<sup>51</sup> [xxvii. Surely it is easier to assume that the *i*-stems (with one or two exceptions, such as *tír*, *tíre*) passed over in the gen. sing. to the *u*-declension. Hence the *-o* (*-a*) = *-ôs*, *-aus*. The fem. *â*-stems likewise, in the gen. sing.—with five exceptions (*inna*, *óena*, *mnáa*, *cacha*, *nacha*)—have passed over to the

of the consonantal declension (compare also Gothic *-yus* and *-eis*), a fundamental form *-avis* and *-ajis* is to be laid down for the nom. plur.; *-ais* must arise from *-avis*, and this, on the dropping of the *s*, could contract to *-â*, *-ê*, or *-î*; *-ajis*, in consequence of the preponderance of the *i*-sound, passed, as it appears, exclusively into *-î*, certainly at least in the masculine in *-ati* (nom. *-id*, gen. *-ada*); the auslauts were, as everywhere, subsequently shortened, so that, along with *-ai*, *-ae*, *-a*, *-e*, and *-i*, also occur, e.g.: *gnímai*, *gnímae*, *gníma*, *gníme*, *gními*, from the stem *gnímu* (action). The form *mogi*, from the stem *mugu*, along with *mogae*, is interesting, as their common origin from *mogai* is betrayed by their *o*. The ending *-e* of the gen. plur. is remarkable; it appears to announce itself in *moge* as a degeneration of *moga*; on the other hand, it has producedumlaut in *forcitlaide* (præceptorum); either there existed earlier a difference here, as in the nominative plural, such that *-avan* contracted itself into *-ân*, *-ajan* into *-ian*, *-ên*, or, theumlaut in *forcitlaide* is inorganic, and *-e* is in both cases degeneration of *-a*, from *-ân* = *-avân* and *ajân*, which forms we take as a starting point according to the analogy of the Gothic *-ivê* and *-ê* instead of *-iyê*. The dative plural shows a remarkable anomaly, the normal *-ib* of the *i*-stem no doubt appears in it, but not the *-ub* or *-uib* to be expected in the *u*-stem, but, instead of it, *-aib* (compare *aitrebthidib*, *mogaib*); either interchange has here taken place between *ui* and *ai*, a circumstance otherwise without example (*ui* for *ai* is frequent), or the generality of the ending *-aib* introduced it inorganically here also, in the same manner as in the Greek *πόλεσι*, *πήχεσι* the *ε* appears to have penetrated by means of the false analogy of the other cases. The neuter plur. in the nom. and acc. *rind* (constellations) *mind* (insignia), *fess* (scita), appears, at first sight, to be altogether anomalous without an ending; which is the more striking as even the *a*-stems show an ending where one ought not to expect it; if, however, we start from a fundamental form *-vâ*, *-ja*, in which the *v* and *j* were dropped, a development *-â*, *-a*, may also be conceived (probably we should also take *â* = *ava*, *aja* for a starting point, with inorganic gunation, in which case *rind* would bear the same relation to *gníma*, as *ταχέα* does to *ταχέες*). In spite of much obscurity in details, it is at least clear from the preceding, that the *i*- and *u*-stems by no means so fully coincided from their origin, as would appear from the representation of Zeuss. For the sake of greater clearness, we shall here attempt to give an idea of the

*i*-declension, and consequently exhibit the ending *e* = *ês*, of which the *ê* was probably produced, by a very ancient contraction, from *a-i* (cf. Goth. *anstais*). Here, of course, as also in the Sanskrit and Lithuanian *ávês*, *awês*, "ewe's", the stem-vowel has been gunated.]



declension arranged according to the different periods, without the secondary forms however:—

U-STEMS.			
	<i>Primitive period.</i>	<i>Pre-historic period.</i>	<i>Historic period.</i>
Masc. Sing. Nom. .	bithus	biths	bith
Acc. .	bithun	bithu	bith
Gen. .	(bithavas) bithâs?	bethâ	betha
Dat. .	bithui	bithu	biuth
Plur. Nom. .	(bithavis) bithais	bethai	betha
Acc. .	(bithuns) bithâs	bithû	biuhu
Gen. .	(bithavân) bithavan	bethân	* betha
Dat. .	bithubis	bithuibis	* bithuib
Neut. Sing. . . .	fidu	fid	fid
Plur. . . .	(fidvâ) fidâ	feda	fed
I-STEMS.			
Masc. Sing. Nom. .	dénmadis	dénmids	dénmid
Acc. .	dénmadin	dénmidn	denmid
Gen. .	(dénmadajas) dénmadâs?	dénmadâ	dénmada
Dat. .	dénmadâ	dénmadi	dénmid
Plur. Nom. .	(dénmadajis) dénmadis?	dénmidi?	denm
Acc. .	(denmadins) dénmadis	denmidt	dénmidi
Gen. .	(denmadajan) dénmadajan	dénmadân	* denmada
Dat. .	dénmadibis	dénmidibis	dénmidib
Neut. Sing. . . .	fissi	fiss	fiss
Pl. . . .	(fissjâ) fissâ	fessa	fess

According to this view, it is only the dative plural of the *u*-stem *mogaib* that appears to be distinctly inorganic; the gen. plur. *moge* shows a weakening of the *a* into *e*, which we will presently find again in the feminine.

The feminine *â* and *i*-stems have suffered still greater confusion in their declension, so that the primitive stem can now only be recognized from the vocalization of the nom. sing. and by comparison with other languages.<sup>52</sup> Thus the following show themselves by *e* and *o* to be *â*-stems: *ess*, *ïress* (fides), *nem* (cælum), *tol*<sup>53</sup> (voluntas), *breth* (judicium), *croch* (crux), *ingen* (filia),

<sup>52</sup> [xxviii. It is true that in the Old Irish the fem. *â*-stems have in the gen. (but see note 51), dat. and acc. *sing.* gone over to the *i*-declension; and in the dat. this was the case in Gaulish, as we learn from *Belesami* (nom. *Belesama*) in the inscription of Vaison. But in the Old Irish the fem. *i*-stems are (with very few exceptions\*) still clearly distinguishable from the fem. *â*-stems. In addition to the circumstance that the *â*-stems in general have their gen. sing. in *-e*, whereas the *i*-stems make it in *-a* (*a*), the nom. and acc. pl. of fem. *i*-stems end in *-i*, but those of the *â*-stems in *-a*. Next, the gen. pl. of fem. *i*-stems ends in *ae*, *-e*; that of fem. *â*-stems has no ending. Thus *nime*, *dule*, *caille*, *rigne*, *infinite*, *bliadne*, *fochraice*, *fochide*, are the Old Irish genitives plur. respectively of *nem*, *nim* (heaven), *dûil* (a thing), *caill* (a wood), *rigain* (a queen), *infini* (an infinitive), *bliadain* (a year), (not *bliadan* as Ebel wrongly gives it); *fochricc* (a reward), *fochaid* (tribulation). Thirdly, the dat. pl. of fem. *i*-stems ends in *-ib*, that of *â*-stems in *-aib* (*áirmib*, Zeuss, p. 670, probably comes from \**áirim*: cf. Welsh *rhif*).]

<sup>53</sup> In the Lord's Prayer, as given by O'Donovan, there is, however, *bid do toil* (thy will be done), which indicates an *i*-stem.†

\* *Gabáil* and its compounds are declined in the plur. like *â*-stems, so *ídabairt*, *epert*.

† [xxix. *Toil* here is the accusative sing., according to the regular Old Irish syntax (Zeuss, p. 894): the nom. sing. is *tol*, which was anciently a fem. *â*-stem.

*aimser* (tempus), and the words in *-em*: such as *moídem* (laus), *cretem* (fides);—by *ia* instead of *é*: *grian* (sol), *briathar* (verbum), *bliadan* (annus);—by comparison: *rún* (mysterium)= Gothic *runa*, *ferc* (ira)= $\delta\rho\gamma\acute{\eta}$ , the words in *-acht* and *-echt*, which presuppose a Sanskrit *-akatá* and *-ikatá*, and which are not consequently derived directly from the stem-substantive, but through a hypothetical adjective in *-ach* or *-ech* (= Sanskrit *-aka*, *-ika*), as for example, *déacht* (divinitas), which is not obtained directly from *dia*, but through *\*déach* (divinus). We must likewise consider as *i*-stems the verbal-nouns in *-t*, such as *epert* (locutio), *tabart*, *tabairt* (datio), and also *iarfigid* (inquisitio, quæstio); the secondary forms, as *muíng*, f.=*mung*, m. (a mane), quoted by Pictet, (*op. cit.* p. 123), appear to be *i*-stems (whose nominative *-í*, *-i*,  $\geq$ , cannot be distinguished in its real state from *-is*,  $\geq s$ ,  $\geq$ ). No certain distinctions can be at all recognized in the case-endings, and nothing can be based upon the secondary forms. The genitive singular shows, for instance, along with the dominant *-e*, also *-a* and *-o*; but if we would assign the *-a* to the *á*-stems, and the *-e* to the *i*-stems, we find our proposition contradicted by the circumstance that *-e* is the commonest ending, and appears just in those words the vowels of which point to *-á*, as in *níne*, *irisse*, *ingine*, and that *-a* occurs frequently in characteristic *i*-stems, as in *eperta*; if, on the other hand, we would assign *-a* to the *i*-stems, from the analogy of the masculine, and *-e* to the *a*-stems from the analogy of the Latin *-æ*, the feminine of the adjectives like *cacha*, *nacha*, (and even *óena*, along with *aine*), will remain unconsidered; consequently *-a* is clearly the oldest form in both classes, it weakened itself into *-o* and *-e*, even in the same words; e. g., *dúile* and *dúlo*, from *dúl* (mundus, res, creatura), and the unlaut before *e*, in spite of its universality, is inorganic; the fundamental forms *-ás* and *-ajas* must also follow the same course: *-ás*, *-á*, *-a*, or if we prefer starting from *-ais* instead of *-ajas*, we have *-ais*, *-ai*, *-a*. The *i*-stems could form the dat. sing. in *-í*, *-i* (or *-ají*, *í*, *-i*, which is less probable), the *a*-stems either in *(-ái)*, *-é*, *e*, or *(-ai)*, *-í*, *i*, as in the nominative plural of the masculine; both of them consequently agree, as may be expected, in the unlaut. An *-ís*, *-í*, *-i* might have been expected in the nominative plural, as in the masculine, from the fundamental form *-ajis*; but an *ais*, *-ai*, *-a*, was equally possible; and if the examples give *-a*, *-e*, and *-í*, an *-ai*, *-í*, *-i* is not impossible, even in the case of *a*-stems (compare Greek *-ai*, Latin *-ae*): consequently a separation of both classes, according to the ending, is neither *a priori* necessary, nor in the actual state possible (see the examples in Zeuss, 262, 263); although, nor doubt, the assumption of a primitive difference between *-a* (from *-ás*) and *-i*

(from *-ajis*) has much in its favour. What is most striking is, that no ending whatever is found, not only in *persin* from *persan* (*persona*), which is treated in Modern Irish altogether as an *n*-stem (nom. *pearsa*), but also in *aimsir*; and only in the vowel is there an indication of *-i*. Zeuss considers the *e* and *i* as secondary forms, which have resulted from assimilation: *litre*, *epistli*, appear to speak in favour of this view, but not *bliadni*; for an *a* has been here dropped. The following hypothesis appears to me to offer most advantages: the feminines in *-i* formed like the masculines, the nominative plural in *-i* (see above), those in *-â*, contracted *-âi* (as in the Greek and Latin), into *é* or *í*, which, in consequence of its genesis from *-âi*, yielded somewhat more resistance to retrenchment than the *-i* of the masculine resulting from *-ai*, and which therefore maintained itself, in part, in the weakening *-e*, *-i*, and in part actually dropped off; but the form *-a* rests (as in Slav. *-y*, *-e*), on an interchange with the accusative, which frequently took place in the old language, but which has deformed the whole declension in the modern. This hypothesis is supported by the nominative plural of the *iâ*-stems, which never contain *-e*, but everywhere *-i*, a circumstance which points to an earlier *-i* generated from *-ie* or *-ii*. The class-distinctions are completely obliterated in the gen. plur. (without ending), dat. (*-aib* and *-ib* without distinction), and acc. plur.,<sup>54</sup> which also often terminates in *-a* in undoubted *i*-stems, e. g., *idbarta* (oblationes), seldom in *-i*, as *dúli* (res), *epistli* (epistolas).

If almost everywhere here, an invasion occurred of the most numerous *â*-stems, the reverse appears to have taken place in the accusative sing., which exhibits, almost without exception, umlaut or a primitive *i*; only *delb* (imaginem) and *nem* (cælum) point to an ending *-an* (*ân*). Even if we were to assume that *-an* was changed, as in the Zend, into *-en* (in the consonantal declension we were led to an accusative *-in* or *-en*), the cause why this degeneration did not befall the primitive *-ân* of the feminine rather than the *-an* of the masculine, would still remain unexplained. The *iâ*-stems partake of the above mentioned deformities in the accusative singular, which terminates in *-i* instead of *-e*, and in the accusative plural, which likewise ends in *-i*, on the other hand the gen. sing. *-e* leads us back to the primitive *-a* of this case; the nominative plural *-i* appears to be formed according to rule, except that all the end syllables are shortened. Accordingly, instead of the forms to be expected,—which are somewhat as follows:

<sup>54</sup> [See Note 52, p. 100.]



Sing. Nom.	-á	-a	—	-is	ḡs	ḡ
Acc.	-án	-an	—	-in	ḡn	ḡ
Gen.	-ás	-á	-a	-ás	-á	-a
Dat.	-í	-i	ḡ	-í	-i	ḡ
Plur. Nom.	-í	-i	ḡ(?)	-is	-i	-i
Acc.	-ás	-á	-a	-is	-i	-i
Gen.	-án	-an	—	-aján	-án	-a
Dat.	-ábis	-aibis	-aib	-ibis	-ibs	-ib

—we find the following actually occurring:

Singular	—, ḡ	Plural	-a (-i, ḡ)
	ḡ (-)		-a (-i)
	ḡe (-a, o)		—
	ḡ		-aib (-ib)

in which ḡ represents the after-action of the retrenched *i*. The same degeneration of the original forms occurs again, as may be expected, in the Modern Irish, where *an cholam* (columba) fluctuates in the gen. sing. and nom. plur. between *na colaime* and *colama*, and even in the dat. sing. between *do'n cholam* and *cholaime*; it is still further increased by the circumstance that the genitive has also frequently thrown off the inflexion vowel, *e. g.* *na hoigh* from *an oigh* (virgo). In general, however, the *á*-stems appear to have assumed the ending *-e*; the *i*-stems on the other hand *-a*, *e. g.*: *slat* (rod), gen. sing. and nom. plur. *slaite*; *sgiath* (wings), gen. *sgeithe*; *neamh* (heaven), gen. *neimhe*; but *feoil* (flesh), has however, gen. sing. and nom. plur. *feola*; and *oigh*, although in the gen. sing., it has *hoigh*, in the plural it is *na hogha*. The fluctuation has even passed over to the masculine, for *iasg* (fish) forms gen. *éisc*, plur. *éisc* or *iasca*; and *sruith* (scholar), in both cases *sruith* or *srotha*. In the Old Irish, the vocative has been already suppressed throughout in the plural by the accusative; in the singular there are only some forms of the *a*- and *á*-stems preserved, *e. g.* *fír* from *fire*, as in other languages; *duini* from *duinie*; and among consonantal stems the single one *ath(a)ir* in the Lord's prayer. We have already found arguments in the Old Irish for a permutation of the accusative and nominative. The consonantal *n*- and *t*-stems suffer likewise a peculiar mutilation in the Old Irish. The secondary forms related to *anim* (anima); gen. *anme*, dat. and acc. *anim*, admit of being explained from a vocalic fundamental form: not so the anomaly, which not unfrequently occurs, that the nominative directly supplants the dative and accusative. Examples: *do foditiu* (ad tolerationem), *do aurlatu* (ad obedientiam), acc. *aurlatu* (obedientia); compare also Pictet's observations (Beiträge zur vergleichenden Sprachforschung, I. 82 ff.), where the reverse is likewise proved. The circumstance that, in the Modern Irish, there is mostly (except in the anlaut) no difference to be found between the nominative and dative singular, agrees with the foregoing; it consequently appears that the accusative first coalesced with the nominative, and then the dative. The language is, therefore,

in a fair way to lose all its inflexions like the Kymric dialects, and first of all the genitive plural, which now is most like the nom. sing.;—properly speaking, only the gen. sing. and plur. and dat. plur. are yet retained: indeed the latter has been already deprived of its ending in the article, in the same way as the adjectives have lost all their inflexions. The decision as to the origin of the modern forms of the consonantal stems is rendered more difficult by this phenomenon. Only few still correspond to the old form, thus *breitheamh* (judex), gen. *breitheamhan*, nom. plur. *breitheamhuin*, with BRITHEM, gen. BRITHEMAN, nom. plur. BRITHEMAIN. *Daileamh* (butler), for example, deviates already in the gen. *daileamhuin*, from *dúlem* (caupo), gen. *dáleman*. The majority have affixed *-e* or *-a* either in the nom. plur. or in both cases, and it is difficult to decide whether we are to look upon this as a simple transition into the vocalic declension (as in New High German *brunnen*, instead of *brum*), or whether the nom. in *-a* is not really an accusative; probably the accusative form first passed into that of the nominative, and that then the genitive singular followed the analogy of the nominative plural now appearing vocalic. A striking example of this mixture of forms is afforded by *cu* (canis); gen. *con* (perfectly normal), or *cuin* (*a*-stem); dat. *coin* (normal); nom. plur. *cona* (accusative form), or *con* (spurious formation), or *coin* (normal); gen. *cu* (mutilated), or *con* (normal); dat. *conaibh*. The nominative plural *athara* from *athair* (father), has assumed the accusative form, and thereby got the external appearance of a vocalic stem, which has succeeded the gen. sing. *athara* (together with the primitive *athar*); side by side with them forms with *-ach* have been introduced; *e. g.*: *aithreach* (as in Old Irish CATHIR).<sup>55</sup> The application of the suffix *-adh* (compare *dénmid*, *dénmada*, or *tenga*, *tengad*), as an inflexion-copulative, is new; *e. g.*: in the plural *bogadha* (for *bogha*, bow), considered also by Pictet (*Op. cit.* 128) to be a new formation; but, perhaps, it may help us to an explanation of the Kymric plural forms.

The Kymric, on which we must in conclusion cast a glance, has preserved nothing more of its whole inflexions, even in the oldest documents, than the sign of the plural, but this it employs very arbitrarily: compare *trimeib* (tres filii) with *meibion*, *meibon*, and *tyreu* (turre) with *tyroed*. Obviously, as in the New High German, this is of three kinds: either the old plural form remains, consequently true inflexions, as *brüder*, *gäste*, *fische*, from the Gothic *bróþrjus*, *gasteis*, *fiskós*; or the dropped off ending of the stem in the singular has disappeared behind the gramma-

<sup>55</sup> [xxx. *Aithreach* is simply due to a passage over to the c-declension. So in Early Middle Irish we have *mainistir* (from *monasterium*), making its gen. sing. *manestrech*. Zeuss, xxviii.]

tical ending, as in *mannen*, where the *-an* of the Gothic *manna* (stem *mannan*), which has vanished in the singular, has been preserved, while the proper ending, the *s* of *mannans*, has been dropped; or a suffix (determinative), wholly foreign to the stock, like the German *-er* in *eier*, to which true inflexion-endings were, at an earlier period (Anglo-Saxon *ǣgru*), attached, but which, after their loss (as in the Old High German nom. *eigir*), exactly occupies the place of the ending, like German *länder* instead of *lande*, except in the dative plural.

To the first kind belong: 1, the Kymric plurals without endings, and with umlaut, such as Welsh *llygeit*=Cornish *legeit* (oculi); Welsh *seint*=Armoric *sent* (sancti); Welsh *chwaer* (sorores), from *chwior*; *traet*=Cornish *treys*, Armoric *treid* (pedes), from *troet*, Cornish *troys*, Armoric *troad*,—or without umlaut, as *tridyn* (tres homines), *teir morwyn* (tres puellæ). All these forms have lost an *-i*, probably a primitive *-î* or *-is* (*-îs?*), and consequently may be compared to the Gaedhelic forms such as *maice* (fili), to which the Welsh *meib*, or *traigid*, the Kymric *traet*, *treys*, *treid* correspond; for instance, the masculine verbals in *-iat*, *-iad*, pl. *-ieid*, such as *guiliat*, are parallel to the Gaedhelic in *-i*, pl. *-id* (*filid*) (see above). 2. The plurals in *i*, such as *meini* (lapides), from *maen*, Corn. *esely* (membra)=Armoric *ysily*, from *esel*, appear to correspond to the Gaedhelic *-i* (in *ia-* and feminine stems); but interchanges occur, however, such as Cornish *meyn*, Armoric *mein*, alongside of Welsh *meini*, and this even in the same dialect, *e. g.*: Cornish *tell*, and also *tylly* (foramina), from *tol*, which do not allow a strict separation to be effected. As further instances may also be adduced *llestri*, Cornish, and Armoric, *listri*, which represent Gaedhelic *\*lestir*, while on the other hand *dyn* is the Gaedhelic *dóini*. 3. Finally, the plurals in *-au* and *-iau* with their different formations (Zeuss, 290, 122), also belong originally to this category; *e. g.* *tyreu* (turres), Cornish *dethyow*=Armoric *diziou* (dies); *-au* appears to have belonged originally to the *u*-stems, the verbals in *-at* (*-iat*), *-ad*, pl. *-adau* also correspond to the Gaedhelic abstracts (infinitive) in *-ad*, *-ud*, which take *-a* in plural, so that *-au* admits of being very well explained from the Sanskrit *-avas*. Pictet's (*op. cit.*, p. 135) comparison with the Sanskrit *-as*, which changes into *-ô* before sonants, although adopted by Bopp and Kuhn also, is certainly erroneous. But afterwards confusion came in here likewise, so that we see *-au* exactly like the Slavonian *-ov* and the Greek *-ev* and other determinatives applied to other stems also, and hence even to *-iau*. Besides, all three suffixes occur in both genders, so that perhaps the *-i* of the feminine may confirm the above assumed Gaedhelic fundamental form of the nominative plural.



The second kind embraces *n*-stems, such as the apparently anomalous *ki* (canis), the plural of which is in Welsh, *cŵn*, *cwn*, Cornish *KEN*, and which corresponds exactly with the Gaedhelic *cú*, plur. *cuin* (the Gaedhelic *ú* is the Kymric *i*); and *ych* = ox, plur. *ychain* (ancient, *ychen*) = oxen—further, Welsh *brawt*, which has lost its final *r*, plur. *brodyr* (Cornish *braud* and *broder*, while in the Armoric sing. *breur*, *breer*, the *d* has yielded, plur. *breuder*).

Kuhn (p. 595) wished also to include under the third category the *-an* of gen. *cluasan* (the ears), but in this word it belongs undoubtedly to the third, as *cluas* is evidently the old stem, which, in the beginning, was treated in the declension like *áis*. To the third kind belong the following: 1. Many plurals in *-au*, *-iau*, in which the ending is foreign to the word-stem proper, such as *penneu* (capita), stem *pinna* (or *pinda*) = Gaedhelic *cinna*, from which nom. *cenn*, dat. *ciunn*, or *breicheu* (brachia), stem *breich*, instead of *brechi*; 2, most words in *-ion* (or *-on*), e.g.: *deneon*, *dynyon* (homines), from the stem *dini* (instead of *dinia*, as the Gaedhelic *dúine* shows), or *meibion* (filii), along with which appear likewise after numerals the forms *meib*, *dyn*, and all Welsh plural adjectives, e.g. *meirwon*, along with *meirw*, from *marw* (mortuus) = Gaedhelic *marb*, plural *mairb* (*moirb*). The *-n* consequently takes exactly the same place here as in the German adjectives and many feminines. 3. The endings *-et*, *-ot*, *-ieit*, *-eit*, and *-ed*, *yd*, *oed*, which otherwise occur as derivatives, and in this respect have been already compared above with the Gaedhelic *-ad*, *-id*, likewise join many stems as determinatives, in which respect they are parallel with the *-ad*, in Irish *bogadha*, already compared, if I do not err, by Kuhn. (Both forms are related to one another, as *χαριτ* is to *ἐλπιδ* in the Greek.) Compare the following words in *-t*: *merchet* (filiae), from *merch* (is this identical with Lithuanian, *merga* ?), Cornish *denys* (homines), Armoric *bretonet* (Britanni) with those in *-ed*: Welsh, *bydoed* (mundi) from *byt* = Irish *bith*, Cornish *eleth* = Armoric *aelez* (angeli). On the other hand, the favourite suffix of the Gaedhelic *-adh* is not employed as a determinative in Kymric.

In the representation of my results, I have altogether followed the same analytical method which I had struck out in the investigation itself, in order to render the verification easier to the reader. Many things will require completion and correction. On the whole, I hope that the results obtained will show themselves to be correct.

## 2. ON THE ARTICLE IN MODERN IRISH.

IN the modern Irish article *an*, about the relation of which to the old *int*, *ind*, I could not hitherto come to a satisfactory conclusion, I now recognize, with certainty, an intrusion of the

neutral form, as the most colourless and weakest, precisely as the Middle High German had formed to its neuter *daz* a masculine and feminine *der*, *diu*, and the Lithuanian and Slavonian (to *to*) its *tas*, *ta*, *tū*, *ta*. The English use of *that* (pronoun) and *the* (article) for all genders is especially important in this respect.<sup>56</sup>

It is a fact worthy of attention, but one hitherto scarcely noticed, that, besides the coarser, I may say the material, action of languages upon one another, which shows itself in the evident borrowing of words and forms, a finer, a more spiritual influence is exerted. Again, that certain words, without being borrowed, are preserved living and active, by the neighbourhood of other languages, and that many forms of thought and sound, words, expressions, conversational phrases, attach themselves, so to say, to the soil. A comparative syntax would bring many examples of this kind to light, especially in the languages which have grown up on Celtic ground, and determine how much may be ascribed to accident, and how much to intellectual influences. In the Phonology, for example, the Kymric *ui*, *oi*, representing the Gaedhelic *é* (even in loan-words like *cera*, W. 2. *kuyr*, 3. *kwyr*, Cornish V. *coir*, Armorik *coar*) is parallel with the French *oi*, representing the Latin *ê* (avoir = habere); again, the Celtic action of the final sound on the following word is parallel to the forward attraction in *les amis*, etc. Among the words and word-forms which have been preserved on Celtic ground, we may mention: English, *witness* = Gaedhelic *fiadnis* (testimonium), and the English names in *-ton*, along with the Gaulish in *-dūnum*. Of importance in the Syntax are: the French intercalation of the pronoun in *je t'aime*, *je ne t'aime pas*, as in both branches of the Celtic; the French *c'est moi* and the English *it is me* = Gaedhelic *ismé*; the English leaving out of the relative in, *the man (whom) I saw*, as in the Gaedhelic. Now, in this respect the English *that*, *the*, for all genders, are not without importance for the Celtic also, and permit us to conclude, that in the Modern Irish *an fear* for the Old Irish *in fer*, an analogous process has taken place. The relative *an* (*a*, *no*, *n*) appears to belong to the same stem; we may compare the fluctuation between the relative and the demonstrative in the Homeric language, the peculiar use of the Old Persian *hya*, which Bopp also,<sup>57</sup> as I myself did,<sup>58</sup> now looks upon as an article, and our antiquated relative *so*.

<sup>56</sup> [xxxi. This is an ingenious error. The neut. article is quite lost in Middle Irish, and the Modern Irish article *an* (*an t* before a vocalic anlaut), bears the same relation to the Old Irish *in* (*int*) that the Modern Irish preposition *an* (written *a n-*) does to the Old Irish *in*; or the Modern Irish interrogative particle *an* does to the same particle in the Old Irish, viz., *in*. But here, as elsewhere, more is to be gained from Ebel's mistakes than from many another man's truths. The relative *an*, *a*, is doubtless identical in form with the neut. article = \**sa-n*.]

<sup>57</sup> Vergl. Gram. I. 473. 2nd Ed.

<sup>58</sup> Zeitschrift f. Vergl. Sp. v. 305.

3. ON THE SO-CALLED PROSTHETIC *n*.

Mr. Stokes, in his valuable observations on the Irish declension, has agreed with my remark, that the *n* of the inflexion has been preserved in *TEORA NGUTAE*, and here and there also besides the article, and has communicated several examples. Zeuss, curiously enough, has altogether misunderstood this *n*,<sup>59</sup> and everywhere looked upon it either as a superfluous addition or as a shorter form of the article, *e. g.*, before *AILE*, although there it appears only in the nom. neut. and acc. sing. and gen. plur. of all of the three genders,—often in combinations where no article is possible. As a relic of the article I have met with this *n*, only in very few places, and then as the remains of the shortest forms: *AN* (*A-N*) in *TRESNGNÉ*, Z. 611, where the *E* of *TRES* still indicates an *A* dropped out, and *NI EPUR NÍSIN* (*non dico hoc*, instead of *ANÍSIN*) 352; *IN* (acc. dual) in *ETARNDIRAINN* 278, 614, probably as gen. dual in *CECHTARNÁI*, *NECHNARNÁI* 369 (compare the plur. *INNAN ÁI*). The *n* in *LASIN NGUTAI* (instead of *LASINN GUTAI*) 619, 1017. The most of the other examples are clear enough. I shall give here some proofs, which may easily be increased. Nom. and acc. neut. *FOLAD NAILL*, *OLCC NAILL*, *DES* (*i. e.*, *DESIMRECHT*) *NAILL*, *PRONOMEN NAILL* 363, *IMBÉLRE NAILL* 580, *MÓR NAMRI* 596, 889, *GRAD NEPSCUIP* 1048, *AM. NÁCH ANNSE INDUIB* (*ut non difficile vobis*) 703, *HUARE ISDILMAIN NDOCHECHTAR* 369, *ANDÉDE NÍSIU* 319, 704, *ANUATHATH NÍSIU* 353, *ANDLÍGED NÍSIU* 353, *MÓOR NIMNITH* 21, *MÓR NUILE* 609, 889, *DLIGETH NIMMOGNAMA* 984, *CACH MBÉLRE* 489, *FRI CACHNAE* 319, *MIND NABSTALACTE* 229, *RAD IDÉ* 55, *ÁTA DECHOR NAIMSIRE* 1037, *ÁTA DECHOR NETARRU* 374, *ISSAIN CACHNAE* (previously: *ILSENMAN*) 367, *DERED MBETHO* 985, *IS-FUATH NEPERTA* 985, *SAINRETH NANMMAE* 1025, *ARACUMACTTE NANGID NÍ ÁRMISOM ARCHUMACTTE* ([*nam*] *potestatem nequam non numerat ipse pro potestate*) 247, *NÍFAIL NACH NAICCIDIT* (*non est ullum accidens*) 1016, *NICUMSCAICHTHI CUMACTHÆ NAIRI* (*non mutanda potestas propterea*) 1015, *NÍ FÍTIR IMORRO OLC NETIR* (*nescit autem malum omnino*) 1003, *LAA MBRÁTHA* 479, *ALLAITHE NDEDENACHDIUD* [*no doubt ALLAITHEN DÉDENACH DIUD* = *die extremo* (acc. temp.) in *fine*] 316, *ISNOICHTÉCH RÉ NIUIL* (*est undetricenale spatium Julii*) 1075, *ISGNÁTH GÁO ET FÍR NAND* 359. So also: *arindí atreba toxal NAND* 359? Acc. masc. *co rí g n ilainglech* Colman's hymn—*Lib. Hymn.* 10 (to the many angel'd king), according to a friendly communication of Mr. Stokes, *COFER NAILE* Z. 884, *MARUDBAITSIUS NACHNAILE* 434,

<sup>59</sup> [xxxii. Not so. See Zeuss G. C., page 263, where he conjectures that the very form cited here by Ebel, *teora n*, may stand for *teoran*.]



INBITH *n*UILE 366, TRESINNÓEDÉCDE *n*UILE 1074, FOCHOSMUILLIUS *n*ADARCÆ 481, INFOGUR *n*ÍSIN 1014, without the article BESTATIDNISIN 611, AES *n*ESCI 1074 (three times), NIFAIL CHUMSCUGUD *n*HUIRDD AND 369, TAR RECHT *n*AICNID 613 RECHT *n*IMBIDI 229, LETH *n*GO THO 1013 (consequently LETH is also masc. like RECHT), CONROIGSET DIA *n*AIRIUIBSI 1076, AIRTHECH. CACHGUTÆ AGUTH *n*INDI 966, TODDIUSGAT GUTH *n*INTIU 1017, CEN RIAN *n*ETROM 616. So also no doubt: NACH *n*AILE 368, TÓINIUD *n*IRESSACH 229, NERT *n*AINMNEDO 975, ATTLUGUD *n*BUIDE 1048 (the acc. instead of the dat.?), CACHUOEN CRANN 999? I am not quite certain of the gender in: FRI CUMTACH *n*ECOLSO 260, CUMTACH *n*IRISSE 1045, ECOSC *n*ABSTAL 585, TAIBRITH ATÉICHTE *n*DOIB (no doubt neuter) 56. Acc. fem. FRICACH *n*AIMSIR 367, CEC *n*NAIDCHE (instead of AIDCHI) 888, ISARNACH *n*INDOCBÁIL MÓIR 262, HI CACH *n*DEILB 7 HI CACH TARMORCENN 367 (translated by Zeuss as the dat.), I PERSIN *n*AILI 363, FRIRAINN *n*AILI 608, CEN GUTAI *n*ETARRU 1017; also doubtless: ROSCARSAM FRIB DENUS *n*BEICC 310, HIRE *n*ABARCHE 229, SERC *n*DEE 55 (just as NEM, DELB occur in the acc.), CEN ALPAI *n*ETARRU 616,<sup>60</sup> FRIALPAI *n*DESIU 595. Gen. plur. masc. INNAMBALL *n*AILE 229, fem. NA LITER *n*AILE 1012, LITER *n*AILE 1012, neut. ANMAN *n*ADIECHT 433.

Some spurious prepositions, it would appear, may be recognized as accusative forms by the *n*, most distinctly TARÉSI in: U. TARHESI *n*I (U for I) 1012, OLCC TARÉSI *n*UILCC 617, but INDEGAID also: INDEGAID *n*DÉ 619, INDEGAID *n*GUTTÆ 1013, and DOCHUM: DOCHUM *n*DÉE 620, DOCHUM *n*IRISSE 461 (bis).

The *n* of AINM-N belongs to the stem in: AINM *n*APSTIL 229, AINM *n*HETHA 255, AINM *n*GNÚSO 975, AINM *n*DILES 1025, DOBERR AINM *n*DOIB 457.<sup>61</sup> According to this my observation (p. 89), "probably derived, however, from *m*, and not formed from a primitive *n*", must consequently be cancelled, and the single example with an aspiration AINM THRIÚIN Z. 249, considered as an irregularity.<sup>62</sup> As yet I have failed in finding for the masculine and feminine *n*-stems an example of the aspiration, or of a mortified *s*, *f*; I have also, however, nowhere found an *N*; it consequently appears as if the neuter only preserved the *N* as in the Latin and Slavic, \*ANMEN like NOMEN and IMĚ, while the masculine and feminine dropped it; \*BRITHEMÁ like HOMO and KAMY.

<sup>60</sup> According to Stokes (Beiträge zur vergleichenden Sprachforschung I. 468) the *n* of ALPAI-N and INRINDIDE-N belongs to the stem.

<sup>61</sup> See last note.

<sup>62</sup> [xxxiii. The *n* in ainm napstil does not belong to the stem, but (as in pronomen naill cited by Ebel himself, *supra*) is simply an example of the natural tendency to prefix after *all* neuters in the nom. and acc. sing. an *n* (m before *b*) to the following adjective, if this begin with a vowel or a medial.]

The *n* is much less clear in CECHTARNÁI, NECHTARNÁI Z. 369 (which I consider to be a relic of the gen. dual of the article IN, on account of DOCHECHTAR NHÁI, evidently the dative, and of the genitive plural INNAN ÁI), SLIAB NÓSSA 888 (perhaps acc.?), SIRID INRINDIDE NUILE (see note 60) 366, 586, ARBERTAR AS NÓEN TARMOIRCIUNN 592, far NÓENDEILB 670, AM. INLOCHAIRNN NAFFRACDAI 676, where it appears to be in part actually erroneous; COTÍR NEREND 74, appears to indicate a change of gender (comp. RECHT, LETH, NERT); even there, however, Zeuss also gives FIR NEREND (viri Hiberniæ) with a problematical *n*.

There is probably a threefold preposition DO-AIR-IN contained in TAIRNGIRE, DURAIRNGERT, DORAINGRED Z. 56, 868; in the same way that CON became mutilated in FRECNDIRC ÉCNDIRC.

But, very remarkably, the *n* appears very often after verbal forms; mostly, perhaps exclusively, in dependent sentences, frequently after the so-called relative: ASNÓINDAE INSPIRUT 360, ASNED 675, AM. ASNÉ ASSPLENDOR 333, ASNIRESS 456, ASNOIPRED 476, AM. ASNINDEDUR 580, ÓRE ASNDIUL 703, CÉIN BASMBÉO INFER 230, 675, HÓRE ASNAMAIRESSACH 705, LASSE BAS NUÁIN (NUÁIR?) DO 229, ASNDIRRIDIG[THE] ANAINMSIN 265, AMMI NEULIG 252, CONSECHAT NULCU 457, ATA NANMAN SIDI 894, NI CUMCAT CAMAIPH ILLE 7 ISTE BETA NAITHFOILSIGTHECHA DONDÍ AS IPSE 667, INTAIN BES NINUN ACCOBOR LENN 603.<sup>63</sup>

Notwithstanding that several examples still remain unexplained, the preponderating majority show quite clearly, nevertheless, that the *n* is prosthetic, if at all, only in exceedingly few cases; for instance, the forms assumed by Zeuss, NAILL, NAILE, NAILI, NÍ SIN, NÍ SIU, and NAND for AND decidedly fall out.

#### 4. ADDITIONS TO THE ARTICLE ON DECLENSION.

According to a communication of Mr. Stokes, that has reached me through Professor Kuhn,<sup>64</sup> the *a*-stems show in the Old Ogam inscriptions not only the gen. in *i*—MAQVI<sup>65</sup> (a form which explains by its *qv* not only the Kymric *map*, but also the Gaelic masc. without aspiration), but also the nominative in *-as* (CORPIMAQVAS—Cormac). This highly interesting form may accordingly be placed by the side of μάργαν, Pausanias, x. 19, 11, in which we are now justified in recognizing the true Gaulish accusative of *marcas*\* (= gen. *marc*, w. 3, *march*, plur. *meirch*). The Ogam secondary forms in *-os*, show us at what a remote period the obscuration of the *a* to *o* was already common. I

<sup>63</sup> May it be, that as in Greek, an *ν ἐφελευστικόν* existed? Stokes also compares *ammi-n* with *ἐσμέν*.

<sup>64</sup> [Published in the *Beiträge z. v. Sp.* i. 448.]

<sup>65</sup> [Given in Mr. Stokes' paper, "Bemerkungen über die irischen declinationen"—*Beitr. z. v. Sp.* i. 333.]

would not, with Stokes,<sup>66</sup> deduce the length of the dat. plur. from the single form *scélluib*, as even feminine *â*-stems fluctuate between *-ab*, *-ib*, *aib*, which indicates a short vowel; and the *iâ*-stems invariably show *-ib*, instead of the *-ib* to be expected.

That the neutral *aill* rests on a vocalic fundamental form, the *t* or *d* being dropped (like Greek ἄλλο), as was already suspected (p. 90), is confirmed by the mortification of the *s* in *alaill sáin*, *Z.* 364.

According to an observation kindly communicated to me, Mr. Stokes now recognizes in Zeuss' Ordo posterior Ser. iv., three kinds of stems, in *-d*, *-t*, and *-nt*. The latter, to which *dínu*, *fiadu*, *cara*, *náma* (*námae*), belong, correspond accurately to the participles in *-ant*,<sup>67</sup> as, for instance, *cara* (from *cairim*, amo), *fiadu* = *védant*—Stokes); *dínu* appears to be connected with the Sanskrit root *dhé* ("suckling"); *cara* and *náma* likewise occur in the nom. in Zeuss, who has mistaken the true relation, and led me astray: *imcara fá aescare* (sive amicus, sive inimicus), 674, 831, and *bannamae* (inimica), together with the acc. *bannamít* (hostem), 820, the acc. *carit*, 1055, 1062, *escarit*, 1056. These stems appear to be of the common gender like the Latin participles. On the other hand, the *-it* in *nebcongabthetit* stands no doubt erroneously for *-ith* (as generally in all abstracts). That *traig* is a neuter appears to be confirmed by *traig cethargarait*, 1018 (Gl. proceleusmaticum, consequently an acc.); it looks like a participle (= τρέχον), but inflects the dat. plur. *traigthib*, acc. plur. *traigid*; *traigthech* (pedes, pedester), and *traichtechedae*, instead of *triagthechedae* (pedester), are derivational; the neuters have, therefore, probably thrown out the *n*, and taken a weak form (*traigthib* = *tragitábis*). The Kymric *troet*, plur. *traet* appears to rest on stem-extension, — compare Welsh, 2. *cilid*, 3. *cilyd*, with Gaedhelic *céle*; at least, a Kymric *car*, *tan*, stands parallel with the Gaedhelic *cara*, *tene*, so that we have to look in the Kymric forms rather for the nominative, than, as in the Roman languages, for the accusative (see further on). The comparison made in the article on declension (p. 92) between the Kymric *guiliat* and the Gaedhelic *filed* agrees with the explanation of Zeuss; see the emendations to pages 149 and 806, at the end of the Grammatica Celtica.

I cannot as yet make up my mind to give up my former view respecting the feminines in the Ordo Prior, Ser. 5 of Zeuss, namely, that an almost complete fusion of the *i*- and *â*-stems took place, and that only few relics of a purer separation of forms have been preserved. Along with the acc. plur. in *-i*, to

<sup>66</sup> [Idem, 336.]

<sup>67</sup> Also, Stokes' view, Beitr. i. 457.



which *súli* Z. 339, likewise belongs, there occur, however, forms with *-a* from undoubted *i*-stems, as *gabála*; along with the dative in *-aib*, forms occur in *ib* from *á*-stems, as *airmib* from *áram*, *sléibib* from *sliab*; so that *nimib* also does not prove a stem *\*nami* (the nom. *nim* along with *nem*, acc. *nem*, the adjective *nemde* = *\*nimatya* and the Kymric *nef* appear to speak for *\*nimá*, which perfectly corresponds to the feminine of the adjective in the Welsh, while *i*, *u*, fall out without umlaut in the Kymric; further, that *nem-* never occurs before the endings with *e*, *i*, but always *nim-*; the gen. plur. *nime* is however remarkable). But I cannot adopt Mr. Stokes' view about the gen. sing. in *-e*, *-a*; for, in the first place we should not start from Sanskrit *-és*, but from the fundamental form *-ais* (or *ajas*?), out of which *-a* (*o*), and *-e* could be developed in the masculine stems; but *-yás* is a special pure Sanskrit form, which does not again occur in any European language (for that *πόλεως* is not to be explained from it, but from *\*πόλεγος*, is proved by the Homeric *πόληος*, the unjustly attacked masc. *μάντηος*, and the neuter *ἄσπεως*, which, although questioned, is a permanent form with the Tragic Poets); secondly, because umlaut is as little known before *a* (*o*) among *i*-stems as *a*-stems: compare *flatha*, *flatho*, or even *focheda*, *fochodo*; *a* occurs even before *-e* in *ergabale*; we could not consequently lay down as a basis any such form as *-jas*, and must, as I believe, assume that the umlaut in both classes has only been introduced inorganically with the change of the *a* into *e*.<sup>68</sup> The analogy of the gen. plur., especially the invaluable *nandula*,<sup>69</sup> appears even to speak in favour of our starting, both here and in the masculine of Ser. III., from *-ajas* (not from *-ais*).

As regards the *i*-stems, it appears to me more and more probable, that they have almost throughout passed, as in the Greek, into the *ia*-class (*πότηνια*) = *patnî*, etc.

I have found the umlaut in the dative of the *u*-stems, in *immognom*, Z. 984.

### III. Appendix.

TRANSLATION OF THE PART OF THE SECOND CHAPTER OF ZEUSS' GRAMMATICA CELTICA CONCERNING THE INFLEXIONS OF THE NOUN IN IRISH, REFERRED TO IN THE ESSAY OF DR. EBEL.

[One of the most remarkable features of Zeuss' work is the large number of examples taken from MSS. which he has brought forward as the basis upon which his grammatical canons are founded. Thus the examples given in the part of the chapter here translated fill considerably more than thirty pages. All these examples not being necessary for the purposes for which this translation was made, only a small selection of them has accordingly been given. Th

<sup>68</sup> [See notes 51, 52.]

<sup>69</sup> [xxxiv. *Dúla* is, unfortunately, only found in a Middle Irish MS.: in Old Irish MSS. it is always either *dúle* or *dúile*.]

following are the abbreviations which Zeuss uses to distinguish the MSS. from which each example has been borrowed:—

1—Sg.=Codex Prisciani Sancti Galli, No. 904; 2—Wb.=C. Paulinus Bibliothecæ Wirzburgensis M. th. f. 12; 3—Ml.=C. Mediolanensis Bibliothecæ Ambrosianæ C. 301; 4—Cr.=C. Bibl. Carolinensis, 83; 5—Pr. Cr.=C. Prisciani Bibl. Carolin. 223; 6—Incant. Sg.=C. Sancti Galli, 1395; 7—Codex Camaracensis, 619. Gl. signifies Gloss.]

### (A) Declension.

In the old Irish language, the nouns of which have preserved a great variety of forms—in this respect far surpassing the Welsh even of the same period—we find two orders of declension, of which the first, on account of the prevalence of vowels in the inflections, may be called the “vocalic”, and the second, for a similar reason, the “consonantal order”. To the former belong the adjectives, which do not, as in other languages such as the German and Slavonic, possess peculiar forms of their own; substantives alone are found in the latter, though in less number than in the first. In both orders the flexional vowels are either exterior, applied to the end of the word, or interior, placed immediately before the final consonant, whether it be a radical or derived. There are, moreover, some anomalous nouns differing from the usual forms of declension, and developing others peculiar to themselves.

#### FIRST ORDER.

Substantives and adjectives of the masculine and neuter genders agree in their declensions. Those of the feminine gender follow their own forms. I shall give first a scheme of all the forms of declension, which I call series, with examples of each; and then substantives and adjectives from the codices confirming the forms of all the series here exhibited, or even such as present any of their varieties.

#### DECLENSION OF NOUNS *Masculine and Neuter.*

Paradigms: I.—*Céle* (a companion). It has not appeared so necessary to give derivative examples of this first series, such as *echire* (a horseman, a muleteer?), *tectire* (an envoy), as of the following, on account of the internal vowels inflected: II. *ball* (a member), primitive, *tuisel* (a case), derivative example. III. *bíth* (the world), primitive, *dílgud* (forgiveness), derivative.

The neuter differs so far from the masculine, that the accusative and vocative are formed like the nominative; and, in the plural number, the same three cases take their own flexions, different from the masculine, as will be rendered evident by the examples which follow:—

	I. Series.			II. Series.		III. Series.	
Sing.	Nom.	<i>céle</i>		<i>ball</i>	<i>tuisel</i>	<i>bíth</i>	<i>dílgud</i>
	Gen.	<i>céli</i>		<i>baill</i>	<i>tuisil</i>	<i>betho</i>	<i>dilgotho</i>
	Dat.	<i>céliu</i>		<i>baull</i>	<i>tuisiul</i>	<i>biuth</i>	<i>dílgud</i>
III.							8

	I. Series.		II. Series.		III. Series.	
Sing.	Acc.	céle	ball	tuisil	bith	dilgud
	Voc.	céli	baill	tuisil	bith	dilgud
Plur.	Nom.	céli	baill	tuisil	betha	dilgotha
	Gen.	célé	ball	tuisil	bithe	dilguthe
	Dat.	célib	ballib	tuislib	bithib	dilguthib
	Acc.	céliu	baullu	tuislin	bithu	dilguthu
	Voc.	céliu	baullu	tuislui	bithu	dilguthu

DECLENSION OF NOUNS—*Feminine*.

Paradigms : IV.—*tuare* (food). V. *rann* (a part), primitive, *briathar* (a word), derivative.

		IV. Series.	V. Series.	
Sing.	Nom.	tuare	rann	briathar
	Gen.	tuare	rainne	bréthre
	Dat.	tuari	rainn	bréthir
	Acc.	tuari	rainn	bréthir
	Voc.	tuare	rann	briathar
Plur.	Nom.	tuari	ranna	briathra
	Gen.	tuare	rann	briathar
	Dat.	tuarib	rannib	briathrib
	Acc.	tuari	ranna	briathra
	Voc.	tuari	ranna	briathra

I. SERIES.—Of nouns externally inflected, and ending in *-e*, which in the different cases becomes *-i*, *-iu*, *-ib*. Neuter nouns in the nom. acc. and voc. plural vary from *-e* to *-i*.

## SINGULAR.

NOMINATIVE.—Substantive Masculine—*céle* (a companion, husband), Wb. Sg., *duine* (a man), Wb. *dalte* (a disciple), etc.

Subs. Neut. (I give examples only of such as are met with the article), *aneseirge* (the resurrection), Wb. 30<sup>b</sup>. *atrède* (trinitas), *acetharde* (four), Wb. *cumachtae* (power), Sg. 6<sup>a</sup>.

Adjectives. Masculine. *céetne fer* (first man), Wb. 7<sup>b</sup>, *intathir nemde* (the Heavenly Father), Wb. 4<sup>b</sup>; derivative adj. in *de*, *te*, *the*, are of frequent occurrence.

Adjectives. Neut. *anuile* (all), *anuilese* (all this), Wb. 16<sup>b</sup>, *ní nuae ndo anatrabsiu* (this possession is not new to him), Ml. 17<sup>b</sup>.

GENITIVE.—Subst. Masc. *corp induini* (the man's body), Wb. 12<sup>a</sup>.

Subst. Neut. *claar cridi* (table of the heart), Wb. 15<sup>a</sup>, *comalnad soscéli* (fulfilment of the Gospel).

Adj. Masc. *comalnad induili recto* (fulfilment of all the law), Wb. 20<sup>a</sup>.

Adj. Neut. *ánsid cetni diul* (accusative of the first declension), Sg. 91<sup>b</sup>.

DATIVE.—*-u* occurs frequently instead of *-iu*.

Subst. Masc. *do duiniu* (to the man), Ml. 20<sup>d</sup>, *donduin* (to the man), Wb. 4<sup>b</sup>.

Subst. Neut. *dondéiusin* (to these two), Wb. 9<sup>c</sup>, *hi farcridiu* (in your heart), Wb. *In esseirgu*, in *heseirgu* (in resurrection), Wb. 4<sup>b</sup> 13<sup>b</sup> *iarnesseirgu* (after resurrection), Wb. 3<sup>c</sup>.

Adj. Masc. *donchoimdid nemdu* (to the heavenly lord), Wb. 27<sup>c</sup>.

Adj. Neut. *far cétnu diull* (in the first declension), Sg. 90<sup>b</sup>.

ACCUSATIVE.—Subst. Masc. *imfolngi induine firian*, *imfolngi induine slán* (facit hominem justum, salvum), Wb. 4<sup>d</sup>.

Subst. Neut., *ní dilgaid anancride* (you forgive not the spite), Wb. 9 *predchimmi soscéle* (we preach the Gospel), Wb. 14.

Adj. Masc. *lasinnathir nemde* (with the Heavenly Father), Wb. 19<sup>a</sup>.



Adj. Neut. *cen imdibe stóride* (without bodily circumcision), Wb. 2<sup>d</sup>.

VOCATIVE.—Subst. and Adj. Mas. *a iudidi* (O Jew!), Wb. 1<sup>d</sup>. *a már thormachtai* (gl. macte, magis aucte) Sg. 76<sup>a</sup>.

## PLURAL.

NOMINATIVE.—Subst. Masc. *comarpi* (co-heirs), Wb. 19<sup>c</sup>.

Subst. Neut. *e* in Nom. and Acc., *ataat ilchenéle* (there are many kinds), Wb. 12<sup>d</sup>.

Adj. Masc. *dénem dai* (heavenly gods), Sg. 39<sup>a</sup>.

Adj. neut., *na accobra colnidi* (the carnal desires), Wb. 20<sup>c</sup>.

GENITIVE.—*buáid innamméid talmande* (victory of the worldly soldiers), Wb. 11<sup>a</sup>.

DATIVE.—*donab huilib doinib* (to all men), Sg. 189<sup>b</sup>.

ACCUSATIVE.—Subs. Masc. *friarceilu* (against our companions; *i. e.* against others), Wb. 33<sup>b</sup>; *eter dóini* (amongst men), Wb. 28<sup>b</sup>.

Subst. Neut. same as Nom.; *ruchualatar ilbéle* (they heard many tongues), Wb. 12<sup>d</sup>.

Adj. Masc. *farnuili baullu* (all your limbs), Wb. 3<sup>b</sup>.

Adj. Neut. *na huli dorigniussa* (all that I have done), Wb. 24<sup>b</sup>.

VOCATIVE.—No instances occur for this series in the MSS. Elsewhere, however the Voc. plural agrees with the Acc.; and here it may be fixed for the masc. *-iu*, and for the neut. *-e*, *-i*.

II. SERIES.—Internal inflection, wherein several cases, especially the Gen. Dat. sing. and Nom. plural, the signs of the cases—*i* and *u* either accompany or suppress the final radical or derivative vowel. The vowels which are most frequently so affected are *a* and *e*. *A* in those cases either becomes *ai* (*oi*, *ui*) and *au*, or disappearing leaves the *i* and *u*. But *e* with *i* and *u* becomes *i* and *iu*. The vowels *o*, *ó*, *á*, of more rare occurrence, and sometimes *a* in position, never admit of *u* by their side, but with *i* they become *oi* (*ui*) *ói*, *ái*; *é*, for which *éu* is sometimes met, with *i* becomes *éui*, *íui*, *éoi*; with *u* *íu*; *ói* and *ái* are nowhere changed, Substantives and adjectives neuter take *a* in the nom. acc. voc. plural.

## SINGULAR.

NOMINATIVE.—Subs. Masc. *inball* (the limb), Wb. 12<sup>b</sup>. *inmacc* (the son), Wb. Sg. *infer* (the man), *passim*.

Subst. Neut. *anaccobor* (the will, desire), Wb. 3<sup>d</sup>. *anderbad* (the certainty), Sg. 90<sup>d</sup>.

Adj. Masc. *inspirut nóib* (the Holy Ghost), Wb. 4<sup>a</sup>. derivatives in *ach*, *ech* are very frequent.

Adj. Neut. *atir romanach* (the Roman land).

GENITIVE.—Subs. Masc. *ainm thríuin* (a hero's name), Sg. 96<sup>a</sup>, *dí muntir Cessair* (of the family of Caesar), Wb. 24<sup>b</sup>.

Subst. Neut. *imchloud diúll* (change of declension), Sg. 31<sup>b</sup>. *recht náicnid* (law of nature), Sg. 217<sup>b</sup>.

Adj. Masc. *isínanmim inspiruto nóib* (in the name of the Holy Ghost).

Adj. Neut. *asainreth indanma dilis* (that is peculiar to a proper name).

DATIVE.—Subs. Masc. *dondaum* (to the ox), Wb. 10<sup>d</sup>, *defiur*, *donfiur*, *do óen fiur* (to the man, to one man), Wb 10<sup>b</sup>. 11<sup>c</sup>. 21<sup>a</sup>.

Subst. Neut. *far cétnu diúll* (in the first declension; *diall*), Sg. 90<sup>b</sup>.

Adj. Masc. *on spirut nóib* (from the Holy Ghost), Wb. 14<sup>c</sup>. Adjectives in *ach* are not changed: *donbráthir híressach* (to the faithful brother), Wb. 10<sup>b</sup>.

Adj. Neut. *ar anmmaimm dilius* (for a proper name), Sg. 27<sup>a</sup>.

ACCUSATIVE.—Subst. and Adj. Masc. *ar óen fer* (for one man), Wb. 4<sup>b</sup>.

Subst. and Adj. Neut. *ataidlech* (the satisfaction), Ml. 23<sup>a</sup>. *cén sáithar* (without labour), Wb. 27.

VOCATIVE.—*á fir* (oh man!), Wb. 10<sup>a</sup>.

## PLURAL.

NOMINATIVE.—Subst. Masc. *adimmaicc* (you are sons), Wb. 9<sup>a</sup>. *Icorp inboillsin* (these limbs are a body), Wb. 3 :

*é* is changed, as in gen. sing. : *asberat mo beíuil* (my lips say), Wb. 12<sup>d</sup>.

Adj. Masc. *sláin* (saved, *slán*), Wb. 28<sup>b</sup>. *adib íressich* (you are faithful), Wb. 12<sup>d</sup>.

Subst. and Adj. Neut. differ by the termination *a* : *átercitla* (their prophecies ; *tercital*) Ml. 19<sup>h</sup>.

Adj. Neut. *cecha dethidnea domundi* (all worldly cares), Wb. 3<sup>d</sup>.

Final *i* is also met, especially in derivatives : *ítsaini inna rinn* (there are different stars), Ml. *isli* (gl. sunk, stars) Cr. 18<sup>b</sup> ; *ísli doibsom infechtisa innahí rupertar ardda dunnai* (those [stars] are now low for them, which were high for us), Cr. 18<sup>b</sup>.

GENITIVE.—Subst. Masc. *irchre fíatho román* (the decline of the Roman Empire), Wb. 26<sup>a</sup>. *Riagóil sengrec* ([the] rule of the old Greeks), Sg. 1<sup>a</sup>.

Subst. Neut. : *airitiu na forcetalsin* (the reception of these doctrines), Wb. 16<sup>a</sup>.

Adj. Masc. *esseirge innanuile marb* (the resurrection of all the dead), Wb. 13<sup>d</sup> ; *indochál inna nóib innim* (the glory of the saints in Heaven), Wb. 13<sup>c</sup>.

Adj. Neut. *foragab duaid inna anman adiecta cen tabairt anman trenfriu* (David assigned to them nouns adjective, without the addition of appellatives), Ml. 30<sup>d</sup>.

DATIVE.—*Donaib ballaib ailib* (to the other members), Wb. 12<sup>d</sup>.

ACCUSATIVE.—Subst. Masc. *farnuili baulu* (all your members), Wb. 3<sup>b</sup>.

Adj. Masc. *la marbu* (with the dead), Wb. 25<sup>b</sup>.

Subst. and Adj. Neut., same as in the nom. *fodaimimse innetha* (I suffer tribulations), Wb. 23<sup>b</sup>.

VOCATIVE.—Subst. and Adj. Masc. *a Rómanu* (oh Romans!), *a Galatu burpu* (oh foolish Galatians), Wb. 19<sup>b</sup> ; *a Judeu et geinti hireschu* (oh Jews and faithful Gentiles), Wb. 3<sup>a</sup>.

Adj. Neut. *inna anman adiecta* (the nouns adjective), Ml. 30<sup>a</sup>.

III. SERIES.—Of nouns externally inflected, except the dat. sing., in which the internal *u* occasionally disappears. Endings peculiar to this series, besides *u*, *ib* dat. and *u* acc. and voc. plural, are : *-o* gen. sing. for which *a* is of frequent, and *e* rare occurrence ; *-a* nom. pl., for which *-e* and *-i* are met with ; *-e* gen. pl. : neuter substantives do not take an ending, but present their naked form in those cases of the plural which differ from the masculine. I have met with no adjectives of this series, unless it happens that *tualang*, pl. *tuailnge* (gnari<sup>70</sup>), be one, Wb. 17<sup>b</sup>.

## SINGULAR.

NOMINATIVE.—Sub. Masc. *bith* (the world) ; *mug* (a slave), Wb. And derivatives in *as*, *chas*, *ad*, *id*, *thid*, *ud*, *igud*.

Subst. Neut. *atir* (the Earth), Sg. 33<sup>a</sup>.

GENITIVE.—Masc., *innetha inbetho* (tribulations of the world), Wb. 14<sup>b</sup>, *mórad dagnímo* (magnifying of a good deed), Wb. 6<sup>a</sup>.

Neut., *anm renda* (name of a constellation), Sg. 73<sup>a</sup>.

DATIVE.—Masc., *isinbiuthso* (in this world), Wb. 12<sup>d</sup>, *do mórad dá* (to the magnifying of God), Wb. 15<sup>c</sup>.

Neut., *di thir* (of the Earth), Wb. 9<sup>b</sup>.

ACCUSATIVE.—Masc., *tri óen pheccad* (through one sin), Wb. 3<sup>a</sup>.

Neut., *crenas tíir* (who purchases land), Wb. 29<sup>d</sup>.

VOCATIVE.—I do not know an example of the vocative of this series.

## PLURAL.

NOMINATIVE.—Masc. *adib mogæ* (you are slaves), *mogi sídì uilí* (these are all

<sup>70</sup> [Tualaing properly means able, competent.]

slaves), Wb. 3<sup>b</sup>. 7<sup>d</sup>. The ending *i* is only found in sub. masc. in *-id*, *-thid*: *foglimthidi* (disciples).

Neut., *itsaini inna rinn* (there are different stars), Ml.

GENITIVE.—*lóg apecthe* (the reward of their sins), Wb. 1<sup>c</sup>.

DATIVE.—*díamogaib* (to his slaves), Wb. 22<sup>d</sup>.

ACCUSATIVE.—Mas., *na dánu diadi* (the divine gifts), Wb. 28<sup>c</sup>.

Neut., *inna mínd* (gl. insignia, celebramus nostræ redemptionis), Cr. 41<sup>c</sup>.

VOCATIVE.—Does not occur; by analogy, *bithu*, *gnimu*, etc.

IV. SERIES.—Of nouns fem. externally inflected, ending in *-e* and *-i*, and, therefore, corresponding to mas. and neut. nouns of the first series in *-e*, *-i*, and *-u*.

## SINGULAR.

NOMINATIVE.—Masc.: *lánē*, *lanæ* (fulness), Wb. 26<sup>d</sup>, 27<sup>a</sup>, *fírinne*, (truth), Wb. 2<sup>d</sup>.

Adj. *fírinne rectide* (righteousness of the law).

GENITIVE.—*Maicc soilse* (sons of light), Wb. 25<sup>c</sup>.

Adj. *hi foirciunn na cetnæ rainne* (at the end of the first part), Sg. 18<sup>b</sup>.

DATIVE.—Subst. *co failti* (with joy), Wb. 24<sup>b</sup>.

Adj. *icomairbirt núidi* (in understanding the [New Testament]), Wb. 3<sup>c</sup>.

ACCUSATIVE.—Subst: *cen fírinni* (without truth), Wb. 2<sup>a</sup>.

Adj. *tresinfiul spirtaldi* (through the spiritual blood), Wb. 20<sup>d</sup>.

## PLURAL.

NOMINATIVE.—Subst. *cit sochudi* (though there be many), Wb. 4<sup>d</sup>.

Adj. *inna ranna aili* (the other parts), Sg. 22<sup>a</sup>.

GENITIVE.—Subst. *do airbirt biuth inna túaresin* (to enjoy this food), Wb. 10<sup>c</sup>.

Adj. *etarne nariun diade* (knowledge of the divine mysteries), Wb. 26<sup>c</sup>.

DATIVE.—*Ibartolaib* [*Inbartolaib*?] *marbdið* (in your mortal wills), Wb. 3<sup>b</sup>.

ACCUSATIVE.—Subst. *inna lobri* (the infirmities), Wb. 6<sup>c</sup>.

Adj. *adcianni na rúna diadi* (we perceive the divine mysteries), Wb. 12<sup>c</sup>.

V. SERIES.—Of nouns fem. inflected both externally and internally, and corresponding at once to Series II. and III. mas. and neut. Special vowel endings are: *-e* in gen. sing., *-a* in nom. and acc. pl.; besides internal *-i* in dat. and acc. sing., if the last syllable admit of the insertion.

## SINGULAR.

NOMINATIVE.—Subst. (of frequent occurrence in the codices): *ess*, *iress* (faith), *nem* (Heaven), *lám* (the hand), etc.

Adj. also numerous: *serc mór* (great love).

GENITIVE.—Subst. *tuag nime* (rainbow), Sg., 107<sup>b</sup>.

Adj., *airde serce móre insin* (this is a sign of great love), Wb. 24<sup>c</sup>.

Instead of *-e*, the regular case-ending, *-o* and *-a* occur (or *vice versa* *-e* for *-o*, *-a* in Series III. mas. and neut.), whether by affinity or dialectical variety; *luct inna æcolsa* (those who are of the church), Wb.

DATIVE.—Subst., *isindinducbáilsin* (in this glory), Wb. 4<sup>c</sup>, *isinbliadinsin* (in this year), Cr. 32<sup>b</sup>.

Adj., *o laim deiss* (on the right hand), Sg. 17<sup>b</sup>.

ACCUSATIVE.—Subst., *tri hiris* (through faith), Wb. 2<sup>c</sup>, *pridchossa hiris* (I preached the faith), Wb. 7<sup>b</sup>, *fri toil dé* (against the will of God), Wb. 4<sup>c</sup>, *fri etáil* (against Italy), Wb. 6<sup>d</sup>.

Adj., *isarnach nindocbáil móir* (it is for every great glory), Wb. 23<sup>b</sup>.

VOCATIVE.—*A nóib ingen* (oh holy virgin!), gl. marg. Sg. 112<sup>a</sup>.

## PLURAL.

NOMINATIVE.—Subst., *láma et cossa* (hands and feet), Wb. 12<sup>b</sup>, *na bretha* (the judgments), Wb. 17<sup>b</sup>, *inna ranna* (the parts), Sg. 22<sup>a</sup>, 26<sup>b</sup>, *na briathrasa* (these words), Wb. 28<sup>c</sup>; *-e* and *-i* also occur in many, as the result of assimilation:



*octídelbæ andsom* (gl. sunt formæ octo), Sg. 166<sup>a</sup>, *na litre* (the letters), Sg. 10<sup>a</sup>, *inbértar epistli uáin* (shall the letters be sent from us?), Wb. 15<sup>a</sup>, *athissi* (gl. conflictiones; sing. nom. *aithiss*, Wb. 13<sup>b</sup>, compos ut *iress*?) Wb. 29<sup>b</sup>, *teora bliadn* (three years), Cr. 32<sup>b</sup>.

Adj. in *-a*: *béisti olca* (evil monsters, or reptiles), Wb. 31<sup>b</sup>. Adj. in *-i*: *itne-phchumscaichti na teora litreso* (these three letters are unchangeable), Sg. 10<sup>a</sup>.

GENITIVE.—Subst., *etarcne narúun* (knowledge of the mysteries), Wb. 26<sup>a</sup>.

Adj., *inna teora liter* (of the three letters) Sg.

DATIVE.—*Hó lámnaib* (from hands), Wb. 9<sup>a</sup>, *donaib teoraib personaib uathataib* (of the three persons singular), Sg. 186<sup>a</sup>.

ACCUSATIVE.—Subst., *adciamni na rúna* (we perceive the mysteries), Wb. 12<sup>c</sup>, *fri tola inbetho* (against worldly desires).

Adj., *nigette* [*nigente*?] *na brithennachta becca* (you would not form slight judgments), Wb. 9<sup>c</sup>.

Subst. and Adj. in *-i*: *acosmiligmer doli ecsamli* (we compare things dissimilar) Sg. 211<sup>a</sup>.

VOCATIVE.—*ni ríccim forless a chossa* (I require not your aid, oh feet!), Wb. 12<sup>a</sup>.

## SECOND ORDER.

Nouns of this class end for the most part in consonants, or rather have such endings as, being originally, no doubt, derivatives, show traces of an internal derivative inflection, with the mutable vowels *a*, *e*, and *i* preceding them. The final consonants are the liquids *m*, *n*, *r*, and the mutes *d*, *ch*, which with the internal vowels form a series of terminations—*ir*, *ar*, *ir*; *in*, *an*, *in*; *id*, *ad*, *id*, etc. One of the substantives in *-m* and *-im*, which I place first, developes certain special forms. If *e* obtain instead of *a*, two divisions are made: (a) *an*, *in*, *ad*, *id*; (b) *en*, *in*, *ed*, *id*. Which discrepancy of vowels can scarcely be ascribed to assimilation, in the face of such forms as *senman*, *menman*, *foirbthetad*, *orpamin*, and others.

Examples of the liquid series (I.) (II.) (III.): *ainm* (a name), *béim* (a stroke), *menme* (the mind), *dítu dítu* (a roof), *athir* (a father).

Examples of the mute series (IV.) (V.) *druid* (a Druid), *cathir* (a town).

I. SERIES.			II. SERIES.		III. SERIES.
	a.	b.	a.	b.	
Sing. Nom.	ainm	béim	menme	dítu	athir
Gen.	anma	béme	menman	díten	athar
Dat.	anmim	bémim	menmin	dítin	athir
Acc.	ainm	béim	menmin	dítin	athir
Plur. Nom.	anman	bémen	menmin	dítin	athir
Gen.	anman	bémen	menman	díten	athre
Dat.	anmanib	bémnib	menmanib	dítinib	athrib
Acc.	anman	bémen	menmana	dítne	athru

		IV. SERIES.		V. SERIES.
Sing.	Nom.	druid	fili	cathir
	Gen.	druad	filid	cathrach
	Dat.	druid	filid	cathir
	Acc.	druid	filid	cathrich
Plur.	Nom.	druid	filid	cathrich
	Gen.	druad	filid	cathrach
	Dat.	druidib	filidib	cathrichib
	Acc.	druid	fileda	cathracha

I. SERIES consists of some substantives in *im*, *m*, taking in the gen. sing. *-a* or *-e*; in the dat. *-im*, with duplicated *m*; and in the plural either *an* or *en*, these two endings forming two distinct classes. In the first (a), the noun *ainm*, of constant occurrence, is proved to be of the neut. gender, from the passage (Sg. 56<sup>b</sup>): *asidirruidig. anainmsin*<sup>71</sup> (this noun is derived). Of the same gender, no doubt, are all other nouns of this form. Of the second class (b) but few examples occur, and these not uniform. There is no instance of a vocative in this or any of the other series.

## SINGULAR.

NOM.—(a) *ainm*, *ainmm* (a name), Wb. Sg. passim.

(b) *béim* (a blow), *ingreim* (persecution), Wb. 18<sup>d</sup>.

GEN.—(a) *indanna dílis* (of the proper name), Sg. 26<sup>b</sup>, (b) no example found in codices.

DAT. (a) *isinanmim inchoimded ihu. cr.* (in the name of the Lord J. Ch.), Wb. 9<sup>c</sup>.

(b) *ocmingrainmaimse* (at my persecution), Ml. 33<sup>a</sup>.

ACC.—(a) *cen ainm* (without a name), Sg. 211<sup>a</sup>.

(b) *ní agathar áingreim* (his persecution is not acted), Wb. 1<sup>a</sup>.

## PLURAL.

NOM.—(a) *asbertar ananman* (their names are mentioned), Wb. 28<sup>a</sup>.

(b) *bémen dígle* (the strokes of revenge), Wb. 17<sup>d</sup>.

GEN.—(a) *diall nanmann* (declension of nouns), Sg. 27<sup>a</sup>.

(b) *foditíu nan ingremmen* (endurance of the persecutions), Wb. 23<sup>c</sup>.

DAT.—(a), *inanmanaib lait.* (in Latin names), Sg. 6<sup>a</sup>; (b) no example known; *bénnib* in the table is, therefore, hypothetical.

ACC.—(a) *tre anman* (by nouns), Sg. 29<sup>a</sup>.

II. SERIES.—Consists of nouns taking in the oblique cases *an*, *in*, and *in en*, whence two divisions. To the first belong derivatives in *-min*, *-man*, *-mn* (which is reduced, however, in the nominative to *-me*, or *-m* only), and nouns of later derivation in *-in* which also in the nom. becomes *-iu*, *-u*. In the oblique cases singular, likewise, especially the dative, other curtailed forms are found by the side of the fuller. These fuller forms of derivatives appear in the case of secondary derivatives: *menmnihi* (gl. dissensiones, from the sing. *menmniche*; *menme*), Wb. 18<sup>a</sup>. *bríthemnacht*, *bríthemnact* (judgeship), Wb. 6<sup>b</sup>. *bríthemandu* (gl. judiciali, from the nom. *bríthemande*; *bríthem*), Ml. 26<sup>c</sup>. *anmanda* (pertaining to the soul; *anim*), Wb. 13<sup>a</sup>. *talmande* (pertaining to the earth; *talam*), Wb. 3<sup>d</sup>. *noidenacht* (infancy; *noidiu*, an infant), Wb. 24<sup>d</sup>. *caintointenach* (well-thinking; *toimtiu*), Ml. 31<sup>b</sup>. *ermitnech* (gl. reverens; *ermitiu*), Ml. 32<sup>b</sup>. For the vowels *a*, *e*, I add *brátharde*, brotherly, from *bráthir*.

To the second division (b) of this series belong numerous nouns in *tu*, derived from verbs (*tu* for *tiu*, not to be confounded with masculines in *-tu*, gen. *-tad*, of the fourth series, and derived from adjectives). There are other feminines of the second class in *-tiu*, and in *siu*, derived also from verbs. In the first division are met both masculines, as, *bríthem*, and feminines, as, *talam*, *anim*.

<sup>71</sup> [Uncontracted form *asidirruidigthe anainmsin*.]

## SINGULAR.

NOM.—(a) *isbeo indanim* (the soul is living) Wb. 4<sup>a</sup>.

(b) *toimtiu* (supposition), Wb. 23<sup>a</sup>.

GEN.—(a) *rosc fornanne* (eye of your soul), Wb. 21<sup>a</sup>.

(b) *dliged remcaissen, dliged remdeissen*, (law of Providence), Ml. 19<sup>d</sup>.

DAT.—(a) *inim et talam, inim et italam* (in Heaven and Earth), Wb. 21<sup>a</sup>.

(b) *oc tuiste dúile* (at the creation of the elements, i.e., of the world), Wb. 5<sup>c</sup>.

ACC.—(a) *accobor lammenmuin* (desire in the mind), Wb. 3<sup>d</sup>.

(b) *nertid arfrescsinni* (he strengthens our hope), Wb. 5<sup>d</sup>.

The final *iu, u* of the nom. seems to have disappeared from some nouns in *t*, as, *fortacht* (help), *bendacht* (benediction), Sg.

## PLURAL.

NOM.—(a) *matuhé ata horpamin* (if these be heirs), Wb. 2<sup>c</sup>.

(b) *derbaisndisin* (the very pronouncements), Sg. 3<sup>b</sup>.

GEN.—(a) *do ícc anman sochuide* (for the salvation of many souls), Wb. 24<sup>d</sup>.

(b) *dedliguth innan iltoimddensin* (in right of these several opinions), Sg. 26<sup>b</sup>.

DAT.—(a) *diarnanmanaib* (for our souls), Wb. 24<sup>d</sup>.

(b) *huafóisinitib* (from confessions), Sg. 33<sup>a</sup>.

ACC.—(a) *aforcíal iccas corpu et armana* (the doctrine which heals bodies and souls), Wb. 30<sup>d</sup>.

(b) *for genitne* (gl. by genitives), Sg. 45<sup>a</sup>.

III. SERIES.—Of nouns of relationship, mas. and fem. in *-ir*, there is but one class, as *e* never occurs for *a* in the interior.

## SINGULAR.

NOM.—*Athir* (father), *máthir* (mother), *bráthir* (brother), Wb. Sg. passim.

GEN.—*Bráthir athar* (gl. father's brother), Sg. 56<sup>a</sup>.

DAT.—*Dondathir* (to the father), Wb. 13<sup>b</sup>.

ACC.—*Lasinnathir nemde* (with the Heavenly Father), Wb. 19<sup>d</sup>.

## PLURAL.

NOM.—No instances in the codices, *athir* by analogy.

GEN.—*Maic indegaid anathre* (sons after their fathers), Wb. 30<sup>b</sup>.

DAT.—*Uambraithrib* (from their brothers), Wb. 33<sup>d</sup>.

ACC.—Does not occur. I supply mas. *athru, bráthru*—fem. *máthra*.

IV. SERIES.—Of derivatives in *-id*, forming in the oblique cases with the mutable internal vowels two divisions (a) *ad, id*; (b) *ed, id*. To the first belong very frequent nouns in *-u*, shortened from *-id*, as *-u, -iu*, from *-in* as above. The ending *id*, has been preserved only in the word *druid*, in the others becoming *-e*, as: *tenge* (a tongue), *ume* (brass). The terminations of the second class have also become in the nom. *-iu, -i*, or *-e*. The full form of the derivatives here also, as in the second series, appears in nouns and adj. of secondary derivation: *fíledacht* (poetry; *fili*, gen. *fíled*), Sg. 213<sup>a</sup>; *óigedacht* (hospitality), *ogi* Wb. 26<sup>b</sup>; to which I add, *Tenedon* (*tene, tened*), a Gaulish topographical name. Further *traigthech* (gl. pedester; *traigid*, Wb.) Sg. 38<sup>b</sup>, 50<sup>b</sup>.

The nouns of both divisions are masculine.

## SINGULAR.

NOM.—(a). Abstract Nouns in *u* from adjectives are very frequent. The ending is either *-u* simple, or the fuller *-atu, -etu*.

Adj. of different form taking *-u*: *artu* (height); = *arddu, ardu* (from *art, ardd, ard*), *domnu* (depth, from *domun*) Incant. Sg. So also *-atu, -etu*: *dánatu* (daring) Sg. 90<sup>a</sup>.

Adj. in *-ide, -de, -te*, taking *-u*: *óentu* (unity; adj. *óente, óende*, Wb. 7<sup>c</sup>), *corpdu*



(corporality, adj., *corpde*), Wb. So also, *-atu, -etu: fliuchaidatu* (humidity, adj., *fliuchaide*), Cr. 18<sup>c</sup>. *foirbthetu* (firmness), Wb. passim.

(b) *cóindiu* (Lord), Wb., *tene* (fire), Sg., 69<sup>b</sup>.

GEN.—(a) *tech nebmabthath* (house of immortality), Wb. 15<sup>c</sup>.

(b) *bandea tened* (goddess of fire, Vesta), Sg. 53<sup>a</sup>.

DAT.—(a) *ondnephpiandatu* (from the impurity), Ml. 28<sup>a</sup>.

(b) *do filid* (to a poet), Sg., 14<sup>a</sup>.

ACC.—(a) *cen torbatid* (without utility), Wb., 12<sup>d</sup>.

(b) *lassincoimdid* (with the Lord), Wb., 25<sup>b</sup>.

## PLURAL.

NOM.—(a) *dorigénsat druid* (druids made), Wb. 26<sup>a</sup>.

(b) *intan labratar indfilid* (when the poets speak), Sg., 162<sup>a</sup>.

GEN.—(a) from the Irish Annals: *Muiredac na tengad* (Muiredach [professor] of the languages) Tigern. ap. O'Con. 2, 275.

(b) *dolbud filed* (poetic fiction), Sg. 71<sup>b</sup>.

DAT.—*secidaphthib* (to the agents), Wb. 19<sup>d</sup>.

ACC.—(a) *lasna filedasin* (with these poets), Sg. 63<sup>b</sup>.

V. SERIES.—Of certain feminine nouns in *-r*, to which are added the suffixes *-ach, -ich, -ig*. The cases, though not all, of the noun *Cathir* (a town), are met with in the codices, and are followed by *nathir* (a serpent) with the article in Sg.: *indnathirsin* (gl. natrix, *i. e.* serpens hic) 69<sup>a</sup>. doubtlessly, with others in *ir*. Vestiges of this formation appear to have been preserved in the modern Irish: *caora* (a sheep, old form: *cáir, cáer?*) Gen. *caorach*, pl. nom. *caoirigh*. gen. *caorach*, dat. *caorchaibh*, voc. (acc.) *caorcha*. It is certainly preserved in some others in *-ir*, as: *lair* (Old Irish *láir*, a mare, Sg. 49<sup>b</sup>=*lá-ir*), *lasair* (a flame), gen. *lárach*, *lasrach*, pl. *láracha*, *lasracha*. Here, also, the derivative *ch*, appears in the adj. *cáirchuide*, Sg. 37 (ovine); compare the Gaulish name *Caeracates* in *Tacitus*, and also *Caracella* the name of a Gaulish robe, (for *caeracalla?*), but it is wanting, however, in *trechatharde* (gl. tripolites), Sg. 38<sup>b</sup>.

## SINGULAR.

NOM.—Cr. *dim [dín] issí inchathir* (therefore Christ himself is the city), Wb. 21<sup>c</sup>.

GEN.—*aitribtheid inna cathrach asb. tibur* (gl. *Tiburs*: an inhabitant of the town which is called Tibur), Sg. 124<sup>b</sup>.

DAT.—One would expect *-ich, -ig*, by analogy, but the contracted form of the nom. obtains in Wb. 13<sup>b</sup>: *robói issinchathir* (he was in the city).

ACC.—*Romuil dofórsat [folsat] incathraig* (Romulus founded the city), Sg. 31<sup>b</sup>.

## PLURAL.

NOM.—*ilcathraig* (many cities), Sg. 13<sup>a</sup>.

The other cases must be supplied: Gen. *cathrach*. Dat. *cathrichib* (or *cathrib?*) Acc. and Voc. *cathracha*.

## Dual Number.

After the twofold formation of the Irish declension, we may here add a few words concerning this number, on account of its rare occurrence in the codices used for all the series given above. It does not, of itself, denote two persons or things, as for instance in Greek, but constructed with the numerals *dá, di, díb*, it presents in the language

of our codices mixed sing. and pl. forms, relics no doubt of more ancient forms peculiar to this number.

The only form of the article in any case or gender, is, *in* before *d*, the initial letter of the numeral, which in one of the following examples is written *dd*, hard.

We shall give, first, paradigms of the series of the *first order*, and then such examples as occur in the codices. The forms enclosed in brackets are hypothetical, or formed by analogy.

MASC. and NEUT.				
I. Series.	II. Series.		III. Series.	
Nom. céle (i?)	ball		bith	
Gen. céli	(baill) <sup>72</sup>		betho	
Dat. célib	(ballib)		bithib	
Acc. céle	ball		bith	
FEMININE.				
IV. Series.	V. Series.			
Nom. tuari	rainn			
Gen. tuare	rann			
Dat. tuarib	rannib			
Acc. tuari	rainn			

## I. SERIES.

NOM.—The Nom. Masc. appears to occur in the adj. *dadruih ægeptacdi* (two Egyptian Druids) Wb. 30<sup>c</sup>.

Neut. *indagné* (the two forms), Sg. 168<sup>a</sup>.

GEN. and DAT.—Gen. and dat. are not met.

ACC.—Masc. or Neut.: *dobir dasale. dabir imduda are* (ὑπαζ λεγόμενα) Incant. Sg.<sup>73</sup>

## II. SERIES.

NOM.—Masc.: *da mod*, (two moods) Sg., 138<sup>b</sup>.

Neut.: *comescatar da cenél indib* (gl. two genders are mixed up in them), Sg. 61<sup>a</sup>.

GEN.—Of the gen. no instances.

DAT.—Neut.: *frisgair inestimínse dóindib dlígédib remeperthib* (this testament answers to the two previous laws), Sg. 193<sup>b</sup>.

ACC.—*imbir indamér* (ply the two fingers), Incant. Sg.

## III. SERIES.

NOM.—*biet da atarcud and* (there will be 2 relations there), Sg. 198<sup>b</sup>.

GEN.—*Cechtár da lino* (either of the two parts), Sg. 162<sup>b</sup>.

DAT.—*Coms. ó dib nógaib* (composed of two parts), Sg. 93<sup>a</sup>.

ACC.—*Andiall foadanóg* (the declension in both its parts), 98<sup>a</sup>. Sg.

Neut.: *indá érend* (gl. stigmata, porto), Wb. 20<sup>d</sup>.

## IV. SERIES.

NOM.—*It digutai bíte indeog* (there are two vowels in a diphthong), Sg. 18<sup>a</sup>.

GEN.—*Fogor dagutæ indeog* (the pronunciation of two vowels in a diphthong), Sg. 18<sup>a</sup>.

<sup>72</sup> [xxxv. Rectè *ball*, which aspirates,\* must, therefore, have had a vocalic auslaut (-ó -au?) and so cannot possibly be (as Ebel supposes, Beitr. ii., p. 71) identical with the gen. plur.]

\* We say (e.g.), *athair an dá mac fhionn* (father of the two fair sons), *cailleach an dá adharc fhionn* (hag of the two white horns).

<sup>73</sup> [xxxvi. *Da sale is salivam tuam* (*da* for *du*, *do*); *im du da are*, "around thy two temples"; *are* (tempus capitis) gen. *arach*, is a c-stem. These examples are, therefore, improper.]

DAT.—Evidently *do dīb guttib*.<sup>74</sup>

ACC.—Adj. in Sg. 74<sup>b</sup>, *indī rainn ingraidi* (into two intelligible parts).

#### V. SERIES.

NOM.—*Di húair* (two hours), Cr. 31<sup>b</sup>.

GEN.—*Cechtár indarann* (either of the two parts), Sg. 74<sup>b</sup>.

DAT.—*Ni chen dlíged anephdíall ó dīb rannaib* (gl. alteruter, alterutritus non absque ratione non declinatur; i. e. non declinatur e duabus partibus), Sg. 75<sup>a</sup>.

ACC.—*Coitchenaso etir di árim* (common to two numbers), Sg. 72<sup>a</sup>.

Duals of the second order are very rare. The following are instances:—

*Tuicsom inda nainmso* (he understands these two names), Wb. 21<sup>d</sup>; *da druith ægeptacdi* (two Ægyptian Druids), Wb. 30<sup>c</sup>.

#### Anomalous.

Which do not follow a fixed rule and form like all those above enumerated, but have peculiar and shifting forms of their own. Of this kind are: *día* (God), *día* (a day), *duine* (a man), *ben* (a woman), *ríg* (a king), *lú* (a day).

I. *Día* (God), sing. gen. *etargne ndæ* (knowledge of God), Wb. 21<sup>a</sup>; dat. *ó día* (from God); acc. *fri día* (with God), Wb. 20<sup>d</sup>; voc. *a dæ* (oh God). Wb. 5<sup>b</sup> plur. nom. *dé nemdai sún* (Heavenly Gods), Sg. 39<sup>a</sup>; dat. *do déib* (to the Gods), Sg. 39<sup>b</sup>; acc. *tarsna deo* (by the Gods), Sg. 217<sup>b</sup>; Fem. sing. *dea*,—in composition *bandea* (goddess), Sg. 60<sup>a</sup>; plur. *bándúe* (goddesses), Sg. 53<sup>b</sup>.

II. *Día* (day), *cach día* (daily), Wb. 13<sup>c</sup>; *indiu, hindiu* (to day), Wb.; *fride, fridei* (by day), *día brátha* (in the day of judgment), Wb. 23<sup>c</sup>.

III. *Duine* (man)—the radical *ui* becomes *oi* in the plur.; sing. gen. *corp duini* (a man's body), Wb. 12<sup>a</sup>; dat. *donduíni* (to the man), Wb. 4<sup>b</sup>; acc. *infoluigi indúine slán* (he saves man), Wb. 4<sup>d</sup>; voc. *a duini* (O man), Wb. 1<sup>c</sup>; plur. nom. *indóini bí* (the living men), Sg. 39<sup>a</sup>; gen. *icc incheneli dóine* (the salvation of the race of men), 26<sup>d</sup>; Wb. acc. *coræ fri día et dóini* (peace towards God and men), Wb. 20<sup>d</sup>.

IV. *Ben* (woman)—interchanges with the forms *ban, níná: iccfe innmái* (thou wilt heal the woman), Wb. 10<sup>a</sup>.

V. *Ríg* (king), sing. gen. *itaig rí* (in the king's house), Wb. 23<sup>b</sup>; dat. *ainm diaríg* (gl. Lar rex Vejentorum, i. e., the name of their king), Sg. 64<sup>a</sup>; plur. gen. *hi lebraibríg* (in the books of kings), Ml. 30<sup>b</sup>; acc. *conroibitis ocdenum rectche, la riga* (gl. volentes esse legis doctores, i. e., to the kings), Wb. 28<sup>c</sup>.

VI. *Lá* (day) is inflected from the forms *lá, lae*, and *láithe, loithe* (neuter). Sing. n. *aláithe*, Ml. 21<sup>c</sup>; gen. *ammi maíre loi* (we are the sons of day), Wb. 25<sup>c</sup>; dat. *illau báiss* (in the day of death), Wb. 29<sup>c</sup>; acc. *fri laa brátha* (to doomsday), Wb. 29<sup>a</sup>; plur. gen. *ar lin láithe* (in the number of days), Ml. 17<sup>d</sup>.

#### (B) Diminutives.

Common to both subst. and adj., like the declension of the first order. The instances that occur, especially in codex Sg. present the following terminations, *-án, -én*, and *-that*, which are more usual in the mas. and neut., and *-éne, -ne, -nat, -net* in the fem.

Masc. and neut. AN in substantives: *duinán* (a mannikin), Sg. 47<sup>b</sup>. *táidán* from *táid* (a thief), 47<sup>b</sup>. In adjectives *becán* (gl. paullulus), Sg. 48<sup>k</sup>, *trogán* (gl. misellus), 48<sup>a</sup>.

<sup>74</sup> [xxxvii. Rather *do dīb nguttib*, where *dīb n* = the Sansk. *dwābhyām*, Greek *δωῖν* (from *δωφιν*).]



Numerous old proper names have the same ending: *Tresan, Gibrian, Veran Abran, Petran* (vita S. Tresani, Boll., Febr. 2, 53).

EN: *duinén* (mannikin), Sg. 45<sup>a</sup>.

THAT: *sráthathat* (gl. a sting), Sg. 47<sup>a</sup>. *centat* (gl. capitulum), 47<sup>a</sup>. CHAT, NAT, NET, are less frequent: *duinenet* (gl. a mannikin), 45<sup>b</sup>.

Fem. ENE: *laréne* (from *láir*, a mare), Sg. 49<sup>b</sup>.

NAT in subst.: *siurnat* (gl. sororcula), 46<sup>b</sup>. *talamnat* (gl. terrula), 48<sup>b</sup>.

NET, NIT: *fochricnet* (gl. mercedula), 47<sup>a</sup>. *tonnait* (gl. cuticula), 46<sup>b</sup>.

### (C) Degrees of Comparison.

Comparative and superlative. The forms of the first, in the old language, are the more copious, these are either regular or irregular.

#### COMPARATIVE.

Of this there are two forms, *-úhir*, *-iu*, *-u*,—the first of which may be compared with the Greek *ότερος*, and the second with the old Latin *-ios*, *-ius*, the *s* of which passes into *r*. It is indeclinable.

*Ithir* I have only met in one codex Wb., and in one passage 27<sup>d</sup>: *islerithir*.

*Iu* and *u* are used indifferently, though the former is more usual in monosyllables, the latter in polysyllables. The particle *de* is often met after the comparative, corresponding seemingly to the Latin *eo*.

*Iu*: *núbia di mútaib bes huilliu inoensill*. (there cannot be more of mutes in one syllable), Sg. 7<sup>a</sup>. *lériu* (gl. more industrious), 41<sup>a</sup>. *seuiu* (gl. more slender), 14<sup>b</sup>. *goiriú* (gl. more pious), 40<sup>b</sup>.

*U*: *oillu oldate coiccet fer* (more than fifty men), Wb. 13<sup>d</sup>; *isassu, ba assu* (easier), Wb. 15<sup>c</sup>; *atalobru* (that are weaker), Wb. 12<sup>b</sup>; *gliccu* (wiser), Wb. 26<sup>d</sup>; *istairismecheu infer* (the man is stronger), Wb. 28<sup>b</sup>. There are some anomalous comparatives either in *a*, which sometimes becomes *o*, or with peculiar forms of their own. Of the former the principal are:—*máa*, *máo*, *móa*, *móo* (greater), *messa* (worse), *nessa* (nearer), *tressa* (stronger). Besides *óa* (less), *lia* (more), *ire* (ulterior), *ferr* (better).

*Máa* from adj. *már* (great), for which *mór* also occurs. From the form *már* are produced *máa*, *má*, *máo*: *asmáa alailiu* (greater than another), Wb. 12<sup>a</sup>. From *mór* are made *móa*, *móo*, *mó*: *móa léu sercc atuile* (greater with them is the love of their own will), Wb. 30<sup>c</sup>; *fresciu fogchricce asmáo* (hope of the reward, which is greater), Wb. 10<sup>c</sup>.

*Messa* (worse): *fodainid nech asmessa dúib* (endure one who is worse to you), Wb. 17<sup>b</sup>; *creitmechsin asmessa ancreitmech* (this believer is worse than an infidel), Wb. 28<sup>d</sup>.

*Nessa* (nearer): *isnesa do geintib* (he is nearer to the Gentiles), Wb. 2<sup>b</sup>; *innahi ata nessa* (those which are nearer), Cr. 44<sup>a</sup>.

*Tressa* (stronger): *combad tressade liress apstal do fulung* (that the faith of the Apostles might be stronger to suffer), Wb. 25<sup>a</sup>. *ishé dim [dín?] ambés adi intí dúib bes tresa orcaid alaile* (it is their habit that the stronger kill the weaker) Ml. 19<sup>d</sup>.

The three following comparatives, on account of the verbs accompanying them regularly in the sing., appear to have been originally substantives, with a comparative signification. They also sometimes act as adverbs in their naked form.

*Oa* (less): *acoic indid oa g. xxx* (gl. by the fifth less than thirty) Cr., 33<sup>6</sup>.

*Lia* (more, a greater number): *nabad lia diis no thriur dam* (let there be not more than two or three); *iltia sillaba o illitrib* (there are more syllables of many letters), Sg. 71<sup>a</sup>.

*Ire* (ulterior): *aither. ní ashire oldátam. ocus aui* (patronymics no further than sons and grandchildren), Sg. 30<sup>b</sup>.

*Ferr* (better): *ní ferr nech alailiu and* (no one better than another there), Wb. 2<sup>a</sup>; *nípat ferr de* (they are not better of it), Wb. 12<sup>d</sup>.

In the majority of the foregoing examples, the particle *as*, preceding the com-

parative, is evidently the verb subst. 3 pers. sing. in dependent position. It is often, however, a different word, increasing the sense of the gradation, *ex. gr.* the comparative: *ni asse acleith rafitir aslia* (it cannot be easily concealed, many know it), Wb. 23<sup>c</sup>, or of the superlative: *asmaam*. The comparative is still further increased by its repetition with the intervening formula *ass: corrop moo assa moo et corrop ferr assa ferr donimdigidesseirc* [*donimdigid desseirc*] *dé et comnessim* (so that it may be better and better, you increase your love of God and [your] neighbour), Wb. 23<sup>b</sup>; *ferr asaferr* (better and better), Wb. 15<sup>c</sup>.

## SUPERLATIVE.

There are two endings, *-em* and *-am*, the former of adjectives which form their comparatives in *-iu -u*, the latter of anomalous adjectives ending in *a* in the comparative. Internal inflexion in *-am* occurs.

*Em: faillsem* (gl. most clear, lucid, from *follus*, open, clear), Cr. 40<sup>a</sup>, *tóisigem* (gl. the first; in the verse: *primus de Danaum magna comitante caterva*), Sg. 42<sup>a</sup>.

The following are instances of the fuller form, *-imem*, *-ibem*, *-bem* after a double consonant or diphthong radical: *huaisimem* (the highest), Ml. 28<sup>d</sup>, *itdoini saibibem dogniat inso* (they are most false men who do this,—from *saib* false, or properly delusive), Ml. 3<sup>a</sup>.

*Am: oam* (gl. the least), Wb. 13<sup>b</sup>, *asmaam roséchestar arsidetaid* (it is he has followed the greatest antiquity), Sg. 208<sup>b</sup>, *ata nessam* (the nearest) Incant. Sg. *comnesam* (the neighbour [lit. "nearest"]), Ml. 36<sup>a</sup>. Gen.: *desserc dé et comnessim* (love of God and our neighbour), Wb. 23<sup>b</sup>. Dat.: *ho chomnesam* (from the neighbour), Ml. 36<sup>a</sup>. Acc.: *galar bess fairechomnessam* (the disease which is over one's neighbour), Cod. Camar. *athis forachomnesam* (reproach against his neighbour), Ml. 36<sup>a</sup>.

[Just as the preceding pages were going to press, the Archæological and Celtic Society's new volume was published: "Irish Glosses; a Mediæval Tract on Latin Declension, with examples explained in Irish", to which are added the "Lorica of Gildas", with the gloss thereon, and a selection of glosses from the Book of Armagh. Edited by Whitley Stokes, A.B. I much regret that this work had not made its appearance sooner, as it would have enabled me, in drawing up my introduction, to introduce illustrative examples from the Irish, along with those from the Gothic, Greek, and Latin, and thus rendered it more directly useful for the object I had in view in preparing it. As the book contains much that illustrates the subject of the preceding pages, or that is actually supplementary to them, I cannot help describing it for the information of such of the readers of these pages as may not be members of the Archæological and Celtic Society, for the members of which it has been exclusively printed.

The book consists essentially of three parts: 1. of the tract on Latin Declension; 2. of the commentary upon it; and 3. of the *indices verborum*. The tract on Latin Declension is of itself of no value whatever, and was selected for publication solely because of the "large number of Irish words which are placed as glosses to the Latin vocables exemplifying the different declensions". These words,

many of which are not given in our dictionaries, amount to 1139. The commentary consists of a discussion of the meanings of these words, in most cases of their grammatical analysis, and of comparisons with other Celtic dialects, and with the Indo-European languages generally. Every word which occurs in the original MS., and those with which the Irish words have been compared by the commentator, are to be found in the *indices verborum*, which, from their completeness, form a most important feature of the work. A mere enumeration of the separate indices will best convey an idea of the character of the commentary from the point of view of comparative philology. They are: 1. Old Celtic index; 2. Old Irish do.; 3. Middle Irish do.; 4. Welsh do.; 5. Cornish do.; 6. Breton do.; 7. Latin do.; 8. Mediæval do.; 9. Greek do.; 10. Sanskrit do.; 11. Zend do.; 12. Gothic do.; 13. Anglo-Saxon do.; 14. English do.; 15. Old High German.

In point of varied learning, skill, and cautious discretion in the grammatical analysis, the work is unquestionably the best contribution to the comparative philology of the Celtic languages which has yet appeared in the English language, and may fully rank with any similar works by German or French scholars. It is at once a valuable and a timely contribution towards the materials for making an Irish dictionary, and as such the Archæological and Celtic Society has well expended its funds in the publication of it.

The most valuable feature of the work in question, so far as regards the Celtic studies of Dr. Ebel, is, however, the large number of paradigms of the declension of Irish nouns and adjectives which it contains. For the purposes of reference, I think it will be useful to enumerate them all.

Masculine, neuter, and feminine *a-* and *á-*stems: nom. sing. *cenn*, stem *cinna* (masc.), p. 39; nom. sing. *forcetall* (*n̄*), stem *forçetalla* (neut.), p. 51; nom. sing. masc. *mall*, an adjectival stem, p. 97; nom. sing. *rann*, stem *rannâ* (fem. or *á-*stem), p. 38; nom. sing. *diâ*, a masc. *a*-stem, p. 45.

Masculine and feminine *iâ*-stems: nom. sing. *rannaire*, stem *rannâria* (masc.), p. 37; nom. sing. *caile*, stem *caliâ* (fem.), p. 54; nom. sing. masc. *núe*, an adjectival *iâ*-stem, p. 97.

Masculine and neuter *i*-stems; nom. sing. *fáith*, stem *fáthi* (masc.), p. 36; nom. sing. *fiss*, stem *fissi* (neut.), p. 117.

Masculine *u*-stems: nom. sing. *bith*, stem *bithu* (masc.), p. 62.

Masculine *d*-stems: nom. sing. *filí*, stem *filid* (masc.), p. 36.

Masculine *g*-stem: nom. sing. *rig*, a masculine *g*-stem, p. 119.

Feminine *n*-stem: nom. sing. *talam*, stem *talaman*, p. 48.

*Ant*-stems: nom. sing. *caro*, stem *carat*, from *carant* (masc.), p. 65. A paradigm of the declension of *aim* (*n̄*) which was probably originally an *ant*-stem, but which, Stokes says, was in Old Irish a neuter *ann*-stem, is also given at p. 116.

Masculine *r*-stem: nom. sing. *athir*, stem *athar*, p. 39.

*C*-stems: nom. sing. *catlir*. According to Ebel (see p. 94), *catlir* is an *r*-stem, taking the determinative suffix *c*, but Stokes considers it to be a *c*-stem, p. 38.

Anomalous nouns: nom. sing. *ben*, all the singular and plural forms of which are given, p. 121.

At p. 45 a paradigm of the declension of the article is also given. What renders these paradigms the more valuable is, that in almost



every case the forms of the dual number are also given. As several of the words declined by Zeuss and Dr. Ebel are also declined by Mr. Stokes, the corresponding paradigms of each writer may be instructively compared.

Dr. Ebel's papers are frequently referred to in Mr. Stokes's book, and as each may be said to, in a measure, supplement the other, the almost simultaneous appearance of the preceding translation of the Celtic Studies, and of the admirably edited book in question, may be deemed a fortunate coincidence. I hope, also, that the introduction which I found myself compelled to prefix to the papers of Dr. Ebel may likewise enable a larger circle of readers to appreciate the importance of Mr. Stokes's contribution towards our more perfect knowledge of the language of Ancient Erin.]

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ART. IV.—*Hieroglyphic Studies.* No. II.—*By P. LE PAGE RENOUF.*

**H**ORAPOLLO tells us,<sup>1</sup> in the first book of the Hieroglyphica, that the sun was worshipped at Heliopolis under the form of a Cat. This statement is confirmed by the "Book of the Dead", in a very curious passage, of which I here give a translation and grammatical analysis.<sup>2</sup> These, as will at once be apparent, are not intended for the enlightenment of those learned Egyptologists, to whom this passage has long been familiar, and to whom it presents no greater difficulty than the commonest sentence in their mother tongue. The present paper, like my two previous articles, is intended for a class of readers who are not yet able fully to profit by the more learned labours of the masters of the science, in whose writings much information is presupposed, which has never been brought together in a grammar and dictionary, but lies scattered in a hundred different French, English, German, and Italian publications, many of them not generally accessible.<sup>3</sup>

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<sup>1</sup> Ὅθεν καὶ τὸ ἐν Ἡλίου πόλει ξόανον τοῦ θεοῦ αἰλουρόμορφον ὑπάρχει. 1, 10.

<sup>2</sup> For an explanation of the transcription of the hieroglyphs into Roman characters, see ATLANTIS, No. iv. p. 339.

Most of the hieroglyphic texts quoted by way of illustration in this article, are taken from the Todtenbuch (Leipzig, 1842), a book of reference more convenient, both for the reader and for myself, than the splendid but expensive and unwieldy collections of Rosellini, Champollion, and Lepsius. The Abbreviation "Chapter" (or Chap.) will, therefore, always refer to a chapter of the Todtenbuch. The numerals inclosed within ( ) are references to the first lithographic plate accompanying this article.

The passage of the "Ritual", or "Book of the Dead", to which I refer, is found in the 17th Chapter, described by Mr. Birch<sup>4</sup> (in accordance with its title), as containing "the portion requisite to be known, in order to let the blessed out of the Hades, to enter the service of Osiris, and to enable him to make the requisite transformation, or transmigration. This remarkable part", he adds, "contains a number of singular mystic interpretations, which the deceased had to answer when asked—a kind of theological examination of his knowledge and faith". In this strange catechism, the deceased seems, at least in certain portions of it, to be addressed by a number of speakers, each of whom predicates something of himself, as "I am the great Phoenix residing in Heliopolis". "I am Min (?) in his two manifestations—two feathers are placed upon his head". "I am the great Cat in the grove of Persea trees in Heliopolis". The deceased then, in obedience to a rubric, explains, that "the Phoenix is Osiris, residing in Heliopolis"; or that "Min is Horus, the avenger of his father; that his two manifestations are his births, and that the feathers upon his head are the goddesses Isis and Nephthys walking". In many places, however, explanations are given, without having been called for in the manner just described, and rubrics are left out where they might have been expected. Invocations are addressed to various gods in different parts of the chapter, sometimes imploring for protection against terrible divinities, which were supposed to inflict punishment upon evil doers, and the descriptions of which remind us of the "*fiera compagnia*", described by Dante in the fifth bolgia of his *Inferno*.<sup>5</sup> A formula, of which the terms vary, whilst the substance remains the same, frequently occurs, stating, that "this is a day", or "a night" for doing battle, or inflicting injury upon the enemies of Osiris. The explanations given are sometimes, as Mr. Birch says, of a singularly mystical description; they are, however, sometimes very plain and straightforward, and in the passage presently to be noticed of a rather rationalistic character.<sup>6</sup> The 17th Chapter, like almost every

<sup>4</sup> Introduction to the study of Egyptian hieroglyphs, p. 272.

<sup>5</sup> Cantos XXI. and XXII.—

E Ciriatto, a cui di bocca uscia  
D'ogni parte una sanna, come a porco,  
Gli fe sentir come l'una sdruccia:  
Tra male gatte era venuto 'l sorco.

The "male gatte" of the Egyptian *Inferno* were not necessarily evil spirits like Ciriatto, Graffiaccane, and their fellows. In the 125th Chap. (l. 36) of the Ritual, the deceased prays to be delivered from a god who is elsewhere (Chap. 63, 2) described as the eldest son of Osiris, and (Chap. 18, 30) as one of the principal divinities of the city of Narott.

<sup>6</sup> Two words of constant occurrence in inscriptions, are thus explained:—

HeH PU HeNA T'eTa AR HeH HRU PU AR T'eTa KeR HU  
*Ever and ever, "Heh" is day "T'eTa" is night.*

# PLATE 1.

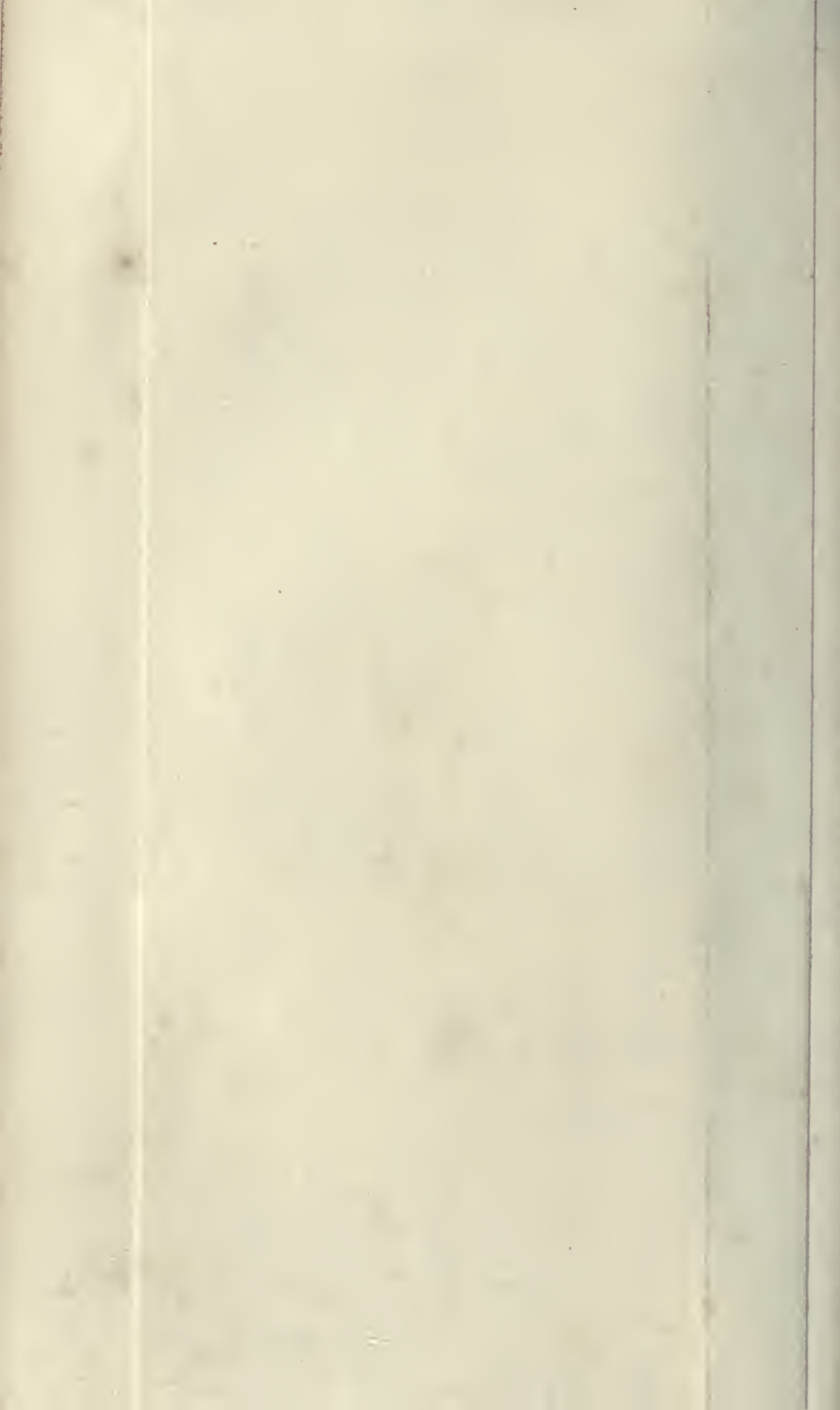
A

	AR		TkT- TV		eM
	SchAU		15		NeN
			SchAU		ARi- NoF
	2				25
	PFI		16		ChePeR.
	3		cr-F		26
	Aa		17		TeN-
	eNTI		eM		eF
	HeR		18		27
	Re-		TPaT		PU
	ScheT		19		eN
	7		SAu		SchAU
	AcIT				

C

ew		SAT
ew		F
u		MT
gate		eM
Boy-		HeB
Boy		
NTa		eNT





other in the "Todtenbuch", is full of various readings, between which, the scribes who wrote out copies of the Ritual, thought it no part of their business to discriminate.<sup>7</sup> These different readings, however incoherent or contradictory, were simply incorporated into the text, and are only distinguished from each other by the words KI T'aT, "otherwise said". Thus we find "his eyes are the two feathers upon his head", after the explanation just quoted in favour of Isis and Nephthys. All these readings were probably looked upon as equally sacred. The first part of our 17th Chapter is found on the walls of a tomb, as old as the eighteenth dynasty, at el Kurnah, and that inscription<sup>8</sup> contains the very same text and different readings as the Turin Papyrus Copy.

This short introduction will suffice to give the reader an idea of the context, or rather absence of context, in which the passage is found which I now proceed to explain. Its purport is this. "The great Cat in the Persea grove at Heliopolis, is the Sun-God Ra, who, in consequence of his calling another divinity Schau instead of Sau, was himself nicknamed Schau, the Egyptian word signifying Cat".

Our text<sup>9</sup> (See Plate I., A) is naturally divided into the three propositions of which it is composed; the first consisting of the first fourteen groups, which must be read and literally translated as follows.—

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
AR	SchAU	PFI	Aa	eNTI	HeR	Pe-ScheT	ASchT	eR-Ma-F	cM
<i>Est</i>	<i>felis</i>	<i>illa</i>	<i>magna</i>	<i>quæ (est)</i>	<i>in</i>	<i>luco</i>	<i>Persearum,</i>	<i>in loco</i>	<i>ejus,</i>
(11)	(12)	(13)	(14)						
AN	RA	PU	T'eSeF						
<i>Heliopoli</i>	<i>Sol</i>	<i>...</i>	<i>ipsa</i>	<i>(sc. felis).</i>					

<sup>7</sup> These various readings must not be confounded with the "variants" so frequently mentioned in these pages, and which are simply different ways of writing the same word, with signs phonetically equivalent. The various readings alluded to are like the "variae lectiones" of the Bible, or the Classics. One reading may be "Osiris", another "Ra"; for "CheNT" *walk*, another reading may have "CheNP" *work*: sometimes the same word may be written in two different readings with different determinatives, and therefore with different meanings. Sometimes the differences between the readings are much greater than I have stated. All, however, are incorporated into the text of the Ritual. Some MSS. are less rich than others in various readings, but it is doubtful whether this is to be attributed to the critical taste of the scribe.

<sup>8</sup> Lepsius Denkmäler III. 38. The most remarkable variant furnished by the text of this tomb, is that (30) of the name of the ithyphallic Ammon, which I have read "Min", like Dr. Brugsch and (at one time at least) M. de Rougé. It must be confessed that this variant is favourable to none of the readings hitherto proposed, but seems rather to point out some name ending in S, like that of the god AS, frequently represented on the monuments.

<sup>9</sup> Todt. Chap. 17, lines 46, 47, 48. In the vignette, a cat is seen seated under a Persea tree, and in the act of putting its paw upon the head of a serpent.

The simple proposition "*x* is *y*", may be expressed in Egyptian by the form AR *x y*. An equally common form is AR *x y* PU, to which may be added the pronoun T'eSeF *ipse*, referring to the *subject* of the proposition, and the whole AR *x y* PU T'eSeF may be translated "*x*, the same is *y*". Such is the form of the sentence now to be analysed.

(1) The use of the particle AR, which corresponds to the Coptic ερε, was to some extent illustrated in the last number of this journal. It represents the "substantive" verb, stands at the beginning of a proposition, and remains invariable, whatever be the gender or number of the subject. According to Champollion, it accompanies the third person only. This rule appears to be true, with respect to purely categorical propositions, but in hypothetical, optative, imperative, and interrogative phrases, the particle in question discharges a very remarkable function, of which the rubrics of the Ritual afford numerous examples. Such phrases as "Is any man called being uncircumcised? let him not procure uncircumcision". "Art thou bound to a wife? seek not to be loosed", are equivalent to "*if* any man is called", etc., "*if* thou art bound", etc. In all such sentences in Egyptian, the word AR, which begins them, appears to be really changed into the conjunction *if*.

Thus, in the rubric of the 86th Chapter (l. 8):—

AR ReCh SchA TeN AU-F PiR-F eM HRu eM NeTeR-KeR	
<i>Is known book this</i>	<i>he goes forth from the day in Hades,</i>
<i>i.e., If this book be known.</i>	
AK-F eM-CheT PiR-F AR CheM Ra PeN AN AK-F	
<i>he enters after going out,<sup>10</sup></i>	<i>Is not known chapter this</i>
	<i>i.e., If this chapter be not known</i>
<i>eM-CheT PiR-F</i>	<i>he enters not</i>
<i>after going out.</i>	

Again (Chap. 101, 6):—

AR TaTa-TU-NeF NeN UT-U <sup>11</sup> eR CheChU-F UN-NeF AM eM
<i>If there be placed to him these talismans at his neck he becomes there like</i>

<sup>10</sup> This was one of the great privileges of the beatified. The Chapter (No. 13, Cf. c. 121) "of entering after going out", begins

AK-NA eM BAK PiR-NA eM BeNNU
<i>I entered as the Hawk, I went forth as the Phoenix,</i>

that is, in the forms of the divine Hawk and Phoenix. (Cf. the vignette to Chap. 46). In the 77th Chapter, the deceased makes his transformations in the form of "the beautiful Hawk of gold with the head of a Phoenix", to hear whose voice the sun pauses on his course. A transformation less flattering, to modern ideas at least, is that into a golden monkey. It is said of the deceased (Chap. 42, 22)—

eNTeF KeFTeN NuB eN NeTeR-U AN A(?)UI-F AN RaT-(TI)-F
<i>Ille (est) simius aureus deorum, non (sunt) brachia illi, non pedes illi.</i>

See the group KeFTeN, Sharpe Eg. Inscr., pl. 57, l. 36, 2nd series.

<sup>11</sup> Coptic ΟΥΧΔΙ, *sanare, salvare*.



Pu-T NuTeR-U SAM eM ScheS-U HoR AU SMen-NeF  
*the gods, he is gathered to the ministers of Horus, and there is set up for him*  
 ChaBeS-eF<sup>12</sup> AN HeSe<sup>13</sup> eM PeT eR-Ma NeTeR SoPT Sche SeF  
*his Lamp through Isis in Heaven where the divine Dog-Star is, he serves*  
 HoR AM NeTeR SoPT  
*Horus in the divine Dog-Star.*

In another Chapter we are told (130, 27):—

AR ARi-TU-NeF NeN UN-N Ba-F ANCh eR HeH AN MuT-eF eM  
*If there be done to him thus, becometh his soul living for ever, he dieth not for*  
 NeM  
*a second time.*<sup>14</sup>

In the following example, which is not the only one of its kind,<sup>15</sup> the subject (ChU, *the departed*) of the apodosis is thrust into the protasis. (Chap. 136, 12):—

AR ChU ARi-TU-NeF NeN AU-F eM MA ANCh-U AN  
*The departed, if there be done to him thus, he will be in the place of the living, he*  
 SeK-eF TeTa  
*suffereth not for ever.*

In the examples just quoted, it might seem that the use of AR in no wise differed from that of the auxiliary verb in other languages, or from that of its synonyms AU or UN in Egyptian. We have a parallel passage in which UN seems to play the same part (Chap. 140, 12):—

<sup>12</sup> Or *Star*. See Brugsch, *Zeitschrift der deutschen morgenländischen Gesellschaft*, ix. p. 514 on the CheBaS-U, or Decans.

<sup>13</sup> Since the publication of the last number of the *ATLANTIS*, I have received an important communication with reference to the reading of the hieroglyphic name of Isis, from a scholar, whose lightest word in a matter of this kind is of the greatest weight. I have also seen M. Devéria's "Notice de quelques Antiquités relatives au basilicogrammate Thouth ou Teti", containing a note on the hieroglyphic name of Osiris. I am myself in possession of other evidence which I have as yet been unable to verify. I retain, therefore, *provisionally*, the readings HeS and HeSARi, until I can discuss the whole evidence on the question.

<sup>14</sup> The 44th Chapter of the Ritual is entitled "The Chapter of not dying for a second time, in Hades". The promise of not dying a second time, or for ever, but of renewing one's life like the sun daily, is extremely frequent in all texts referring to the condition of the dead.

The deceased says (Chap. 38, 2)—

PeTHU-A Re-A AM-A eM ANCh ANCh-A eM TaTaU NeM-A ANCh-A  
*I open my mouth, I feed upon life, I live in Tattu (?) I renew my life*  
 eMChET MuT RA Scha Ra NeB  
*after death like the Sun, every day.*

The fine sarcophagus in the British Museum, which was supposed by Dr. Clarke to have been that of Alexander, contains the following assurance:—

ANCh ReN-K AP To AN SeK-eK AN HTuM-K eN TeT TeTa  
*Vivit nomen tuum in terrâ, non noceris, non peribis in corpore in æternum*

And in another line—

AN MuT-eK TeTa  
*non morieris in æternum.*

See the engraving—Description de l'Égypte Antiquités, v, pl. 40, 5. 6.

<sup>15</sup> Compare (Chap. 148, 4) AR ChU NeB ARi-TU-NeF SchA TeN . . . .  
 "Every dead man, if there be made for him this writing", his soul goes forth, etc.

UN T'aT Re PeN eM UA eN RA AU STa-TU-F HeNA NeN  
*Being said<sup>16</sup> this chapter in the bark of the Sun he is towed along with these*  
 NeTeR-U UN-NeF SchA UA AM-SeN  
*gods he becomes like one of them.*

Many instances, however, occur, in which AR seems altogether to lose its character of auxiliary verb, and Champollion's rule about the third person ceases to hold good. Some examples may be seen in M. de Rougé's "Essai sur un Stèle Égyptienne", p. 108.

AR ABeK SeCheR eM KoRaH HaT'-To AU-F ChePeR  
*Si velis excogitare in nocte diem ipse fiet.*

AR T'aT-eK eN MU  
*If thou saidst to the water.*

AR T'aT-eK T'eSeK eN TeF-eK HaPI-MU ATF-NuTeR-U<sup>17</sup>  
*If thou saidst thyself to thy father, the Nile, the father of the gods.*

AR Ta-K HRa-K eR CheNSu.  
*Si converteris os tuum ad Chons.*

Or, as Mr. Birch translates it, "Would you lift up thy face to Chons?" M. de Rougé calls it a "formule de prière polie".

Some few *clear* traces of the optative use of AR are still to be found in the Coptic: δρῖν σοι ὁ θεὸς (Gen., xxvii. 28), has been translated by ερε ϣⲥ ϣⲥ ϣⲥ, and ἀποστείλαι κύριος (Deut., xxviii. 8) by ερε ϣⲥ ϣⲥ ϣⲥ. But, in fact, wherever we find the particle ε implying a condition, we may be sure that its true hieroglyphic equivalent is AR, the consonant R having been dropped here as in a multitude of other words. The Coptic conjunction εϣωπ *if*, is really made up of ε, and the verb ϣωπ, *to be*, in hieroglyphics AR ChePeR, *i.e.*, "Should it be?" So, again, the negative forms εϣⲧⲉⲉ, εϣⲧⲉⲉ, the Sahidic ερεⲧⲉⲉ, and the Bashmuric ελεϣⲧⲉⲉ correspond to the hieroglyphic AR TeM, as in the 7th Chapter of the Ritual (l. 3).

AR TeM-K KANN AN KANN-A-NeK<sup>18</sup>  
*If thou dost not wait (?) I wait not for thee.*

(2) SchAU, a Cat, Coptic ϣⲁⲩ. This word is written with three

<sup>16</sup> The rubric of Chapter 18 (l. 39) begins with a participle put "absolutely".

T'aT-TU Re PeN UBe PiR PU eM HRu...  
*Being said this pure chapter, he goes forth from the day.*

Cf. 19, 14.—

TaT-TU Re PeN HeR MAHU NeTeR eRTA eM HRa eN SA  
*Being said this Chapter over a divine Crown placed upon the face of a person.*

<sup>17</sup> Prisse Monumens Egyptiens, pl. xxi., l. 21. Compare Mr. Birch's translations Archæologia, vol. xxxiv., 368.

<sup>18</sup> I am not sure that I have hit the sense of the verb KANN, the determinative of which (a man at rest) points to some verb like the Coptic ΚΗΠ, *quiescere*, *permanere*, etc.

letters and a determinative. The first letter of the word was identified by Champollion with the Coptic  $\text{ϣ}$ , in consequence of the evident identity between certain hieroglyphic groups containing it, and well known Coptic words. This kind of proof, however, is not sufficient, as a comparison between Coptic words and their more ancient forms, has proved that in many instances the hieroglyphic sign corresponding to  $\text{ϣ}$  is not Sch but Ch. Most of Champollion's successors have, in consequence, transcribed our sign by *Ch*. Other very strong reasons have been given for this transcription, particularly by M. de Rougé.<sup>19</sup> None of them, however, are absolutely conclusive, whilst, on the other hand, Dr. Brugsch has shown that in *very ancient times*, a certain substance called "Sche SeT" (31) was written (32) with the sign in question as its first letter. This authority, even if it be not supposed to settle the question, is sufficient to justify us in continuing to use the value assigned by Champollion. The difficulty of attaining absolute certainty in the present case arises from the fact, that at all periods of the Egyptian language, the closest affinity, and even interchange, existed between the sounds Ch and Sch. There are variants in which the word ANCh, *life*, is written ANSch; and the word AChoM, *an eagle*, ASchoM. The months called  $\text{ⲙⲉⲭⲓⲣ}$  and  $\text{ⲡⲁⲭⲱⲛ}$  at Memphis, were called  $\text{ⲙⲉⲭⲓⲣ}$  and  $\text{ⲡⲁⲭⲱⲛ}$  at Thebes, and the later inhabitants of Egypt have kept the double forms *Emschir* and *Māchir*. The city called by the Greeks, Chemmis, is written in Coptic both Schmin and Chmin. The Greek  $\chi$  of the words  $\text{ἀρχιμανδρίτης}$ ,  $\text{χειροτονία}$ , is found in Coptic texts transcribed by a  $\text{ϣ}$ .

In line forty-five, the word SchAU is followed by the picture of a Cat, as its determinative. In our text, this ideograph is replaced by the linear hieroglyph representing the skin of an animal. On referring to Champollion's Grammar (p. 82), it will be seen that this sign is found after such words as *ape*, *pig*, *lion*, *wolf*, etc., and is, therefore, rightly considered as the generic determinative of *quadrupeds*.

The use of these non-phonetic signs, which Champollion's opponents represented as offering insurmountable difficulties, really render the most precious service in the decipherment of texts. This is true, not only of the direct ideographic representations of the idea expressed, as when a cat is drawn after the word SchAU, or a horse after HTōR, but in the case of generic determinatives, like that which applies equally to all quadrupeds. The group ACheM (33), for instance, is found with three determi-

<sup>19</sup> Tombeau d' Ahmes, p. 84.



natives. Of these, the arm, with the hand grasping a weapon, is known to be attached to all words expressive of energetic and successful action. The small cross above the arm is found under the same circumstances. The three lines are expressive of *water*. The first time then that we meet this group before a word meaning *fire*, we may be perfectly sure that the action exercised by water upon that element, and expressed by the word ACheM, is that of *extinguishing*, and that this sense will be borne out by the context. Thus, in the negative Confession of the Ritual (125, 10)—

AN ACheM-A CheT eM UNNuT-S  
*I have not extinguished the flame in its hour.*

Or, in the 22nd Chapter (l. 2, 3)—

I-NA ARi-A MeR-TU HeT-A eM HRu eN Ne SeRT ACheM-A  
*I am come, I do the will of my heart in the day of fire, I quench*  
 URT eM PiR-S  
*the flame on its coming forth.*

In another chapter of the Ritual (149, 55), we find the verb before another substantive, but with the same fundamental sense. It is said of one of the infernal abodes<sup>20</sup> whose waters are of flame,

TeM SAU MU-S AN ACheMeN ABU-SeN eNTI eM-S  
*non bibitur aqua ejus, non extinguitur sitis eorum qui (sunt) in ea.*

And, in the next line—

AN ACheMeN ABU-SeN AN HoTeP HeT-SeN  
*non extinguitur sitis eorum, non requiescit cor eorum.*

In this particular instance, it is easy for us to identify ACheM with the Coptic *ⲙⲉⲩⲉⲗ*; but even if this were not possible, the meaning would be undeniable. Still farther light is thrown upon the word when we meet it with the determinative of fire, and consequently with the meaning *consume*.

(3) PFI, the masculine demonstrative pronoun, on which see Champollion's Grammar, p. 182.

<sup>20</sup> The 13th. Although the waters are described as being of an intolerable heat, and also full of "weeds and filth", the deceased invokes (l. 57) the presiding deity of this abode to enable him to prevail over those waters and to drink of them. In the same way, the ninth abode (l. 33, 37) is so terrible that the dead tremble to mention its name; there is no entering in, or going out of it; its gate is of fire, and the air within it, which destroys the nostrils, cannot be breathed. Yet the deceased invokes the god within it as follows:—

ANeT'-K NeTeR PUl AS eM SUH-F I-NA CheR-K UN-NA eM  
*Hail to thee, Oh venerable god in thine egg, I have come to thee, I have become*  
 ScheSe-K PiR-NA AK-NA eM AKeN UN-NA Re-U-S  
*thy servant, I have gone out, I have come into the abode, I have opened its doors,*  
 SeNSeN-A NiF-U AM-S ANChA eM HoTeP-U-S ChU-A AM-S  
*I breathe the airs in it, I live upon its bread, I shine (?) in it.*

(I have kept the words "weeds and filth", on the authority of Mr. Birch. Introduction, p. 275. But I suspect that the word translated *filth*, is one which I should rather render *stubble* or *thorns*, Copt. *ⲡⲱⲱⲓ* or *ⲁⲡⲱⲱⲓ*).

(4) Aa, *great*. The meaning of this group is ascertained from the Rosetta Inscription, where Champollion found it to correspond with the Greek μέγας. It was for this reason that he read it πᾶς. The first sign of the group is, however, often written as the initial sign of the well-known name APeP. The value A is also proved by the variants of the royal name Nephertites (NAIF Aa RoT), and the Greek transcription Ω (that is, a vowel letter) is constantly found in the Gnostic papyrus of Leyden.<sup>21</sup>

(5) eNTI, the relative pronoun of both genders and numbers.—*Champollion, Gram.* p. 306.

(6) HeR, *in* or *at*. On the different significations of this preposition, see *Champ. Gram.* p. 298.

(7) Pe-ScheT. *The Grove*. The first sign of this group, Pe is the masculine article.—*Champ. Gram.* p. 173. The Coptic word ⲙⲉ wood is used in the Pentateuch in the sense of *forest*. Our hieroglyphic group, however, must not be identified with it, for ScheT is not only applied to trees, but to stone, natron, fire, water, and milk.<sup>22</sup> Its real meaning, therefore, probably is “enclosure”, and it is only in a derived sense, like the Greek τέμενος, that it comes to signify *grove*. The Red Sea was called ScheT eN PUNT. One of the names of Osiris was FeNT ScheT Aa, “Dweller in the great enclosure”.

(8) ASchT. The last sign in this group is the generic determination of trees. The group ASchT is generally translated “Persea tree”, though botanists are not unanimous as to the exact species of tree intended. It often appears on the monuments as the tree upon whose leaves and fruits Thoth, or Safch the goddess of letters, inscribes the names of the kings of Egypt.<sup>23</sup>

(9) eR-Ma-F. This group is compounded of the preposition eR *in*, Ma *a place*, and the pronominal suffix of the third person. The sense of eR-Ma has been perfectly well explained by Champollion (*Gram.* p. 499), who rightly compares it with the Coptic ⲉⲛⲙⲁ, which is often used adverbially in the sense of *ibi*, *ubi*. The first part, however, of the paragraph of the *Grammaire Egyptienne* to which I refer gives, I believe, an erroneous view of the extremely important particle MA (34), the right use of which deserves to be illustrated at some length, for although I have more than once\* seen the particle rightly translated, I am

<sup>21</sup> Cf. Dr. Hincks. *Trans.*, R.I.A., vol. xxi. p. 230. Mariette, *Bulletin Archéologique*, 1. p. 57, note 34, de Rougé *Essai sur une stèle Egyptienne*, p. 9.

<sup>22</sup> Compare the following passages of the *Ritual*—17. 45. 66. 122, 6. 142, 4. 144, 30.

<sup>23</sup> See *e. g.* Wilkinson, *Ancient Egyptians* (second series), vol. iii. pl. 54, and for further information, Brugsch, *Geogr. Inschr.* I. p. 258, 259.

\* [This was already in print when I received (Dec. 14) the very remarkable paper by Dr. Hincks, “On the grounds for supposing that the name of the tribe

not aware that any one has called attention to its use, and even so recent and accurate a work as Mr. Birch's Introduction to the study of Hieroglyphics (p. 257, 258) assigns no other meaning to it than "in place of".

Champollion's words are as follows: "On emploie dans un sens à peu près analogue[*to eNSU after*] le mot MA, *𓄀𓄁*, *𓄀𓄂* nom commun signifiant *le lieu, la place*, et dans les mêmes occasions où les textes Coptes offrent le mot *ⲉⲡ𓄀𓄂* à la place". (The real hieroglyphic expression corresponding to "in the place of", is eM MA). He then quotes several examples in which Ma may, indeed, be translated "in the place of", but where it is equally susceptible of another and more correct interpretation. One of these examples is taken from the Rosetta Inscription—

CheP-NeF SuTeN-I MA TeF-eF which Champollion translates  
*Il reçut les attributions royales à la place de son père.*

The Greek translation is *παρελαβεν την βασιλειαν παρα του πατρος* in which MA is rendered by *παρὰ* followed by the genitive, a preposition whose equivalents in Coptic must be sought, not in *𓄀𓄁* but in *ⲉⲃⲟⲗⲗⲁ* and cognate words, corresponding to the English *from*, or rather the Anglo-Saxon *fram* which had a more extensive use than its modern derivative. On comparing together the numerous passages in which MA occurs, it will be found after such verbs as *to take away, seize, deliver, protect, repulse, receive, come*, etc., and very frequently in such a context as to leave no doubt as to its signification.

Thus at the 64th line of 17th chapter of the Ritual, we find the following invocation—

A NeB HaT Aa ATI NuTeR-U NeHeM-K HeSARi  
*Oh Lord of the great dwelling, sovereign of the gods, deliver thou Osiris*  
(N) MA NeTeR PFI eNTI HRa-F eM TeSeM  
*(the departed) from that god who his face (is that) of a leopard,<sup>24</sup>*  
ANHU-F eM ReT ANCh-eF eM CheRI-U  
*his eyebrows (those) of a human being, he lives upon the damned.*

Several invocations of the kind occur in the chapter. Thus the Sun-God, who "emits breezes of fire from his mouth, and who illuminates the earth with his light", is entreated (line 51)—

NeHeM-K HeSARi(N) MA NeTeR PFI ScheTA ARU-F  
*Deliver thou Osiris the departed from that god who conceals his transformations*  
UN ANHU-F eM eR-MeNMeN MACHL  
*his eye-brows are as the beam (?)<sup>25</sup> of the balance.*

of Issachar occurs in Egyptian inscriptions." In this essay (p. 5), I find the true meaning of our group, as a preposition, briefly but distinctly recognized, as I am certain it would be by all other high authorities, if they had an occasion of speaking about it.]

<sup>24</sup> The word here translated "leopard" is the name of the animal depicted in Bunsen's Egypt, vol. i. p. 514, (Ideographics, 252) from a papyrus in the British Museum. The animal belongs to the genus *felis*, but its species is not easily



So again at line 73—

NeHeM-K (N) MA NeTeR PFI Ta BA-U NeSBU HaTI-U  
*Deliver thou the departed from that god who seizes upon souls, devours hearts*  
 ANCh eM HAU-U  
*(and) lives upon evil-doers.<sup>26</sup>*

In the 72nd chapter the departed invokes the Lords of Truth—

NeHeM- TeN- UA MA AT  
*Deliver ye me from the crocodile.*

So again, 136, 6—

NeHeM-K (N) MA ARi-T eR-F BeHeN<sup>27</sup>  
*Deliver thou the departed from there being done to him hurt.*

And again in the 148th chapter, line 16—

A TeF NuTeR-U A MuT NuTeR-U eM NeTeR KeR NeHeM-  
*Oh Father of the Gods, Oh Mother of the Gods, in Hades, deliver*  
 TeN (N) MA CheT NeB TU  
*ye the departed from all things evil.*

Elsewhere we meet such examples as these.

eR-TA-NeF-NA AN NeHeM-F MA A<sup>28</sup>  
*He has given to me, he takes not from me.*

NoK NeHeM TeF-eF MA-SeN<sup>29</sup>  
*I (it is) who deliver his father from them.*

NoK UR Si UR NeSeRT Si NeSeRT eR-TA-  
*I (am) a prince the son of a prince, a flame the son of a flame, there is given*  
 NeF APe-F eM-CheT SchAT-eF AN NeHeM-TU APe eN HeSaRI  
*to him his head after it is cut off: not taken away (is) the head of Osiris*  
 MA-F AN NeHeM-TU AP-A MA-A.<sup>30</sup>  
*from him, not taken away is my head from me.*

identified. The "leopards (?) of Horus" are mentioned in the 13th chapter, l. 2. Horapollon (1, 17) speaks of the lions of Horus.

<sup>25</sup> The sense *beam* is a mere conjecture. I have not sufficiently studied the word, which is commonly written eR-MeN (sometimes with a final -NU), the latter part of it signifying the *forearm*. eR is the verb *facere*. The group occurs again 17, 88. 64, 12. 71, 11. 105, 5. 124, 4. 5. If, as some of these passages would seem to indicate, the word refers to *animals* connected in some way with the *balance*, the pictures of the judgment scene point out the cynocephali. See *Todt*. pl. L. (Cf. the top part and centre of the picture.)

<sup>26</sup> The Coptic Ⲫⲟⲟⲩ is one of the common translations of *πονηρὸς* or *κακὸς*, but the determinative of the group HAU seems to point out the notion "corrupt", as in the phrase (154, 5)—

SaH-U-F TeM HUAU-SeN  
*ossa ejus non corrumpuntur.*

At (33. 1) we have—

AM-NeK PeN-(NU) BoTU eN RA AU USchA-NeK SaH-U  
*Thou hast eaten the rat detested of Ra and hast devoured the bones*  
 eN SchAU HUAUU  
*of a cut putrefied.*

<sup>27</sup> Compare Sharpe, *Egyptian Inscriptions*, 57, 41, where this invocation occurs with the feminine suffixes. NeHeM-K-eS MA ARi eR-S, "Deliver thou to her from there being done-her mischief", etc.

<sup>28</sup> *Todt*. 11, 3. 49, 4.

<sup>29</sup> *Ib.* 32, 2.

<sup>30</sup> *Ib.* 43, 1.

It is needless to quote other examples in which the verb NeHeM (35) occurs.

Passages in the Ritual, parallel to those already quoted, will be found under the following references, 17, 56. 75. 29, tit. 125, 13. 36. 42. 146, 9. 148, 20. 163, tit.

The verb Te, (36) one of the synonyms of NeHeM, takes MA after it as in the title of the 28th chapter—

Re eN TeM eRTA Te-TU HaT eN SA MA-F eM NeTeR-KeR  
Chapter of not being taken the heart of a person from him in Hades.

One of the very next chapters, the 30th, is entitled—

Re eN TeM eRTA CheSeF(37)-TU HaT eN SA MA-F eM  
Chapter of not being repulsed the heart of a person from him in  
NeTeR-KeR.  
Hades.

Let us now now look at passages in which other verbs occur. The verb NeT' (38) is interpreted in the Rosetta Inscription by the verbs σῶζειν and ἀμύνειν. We find Horus saying, in the 128th ch. (l. 5) of the Ritual—

HuI-A-NeK ChaFT-U-K NeT'-NA-TU MA-SeN.  
I have smitten for thee thine enemies, I have been avenged upon them.

In the same way Horus speaks of himself, on a sepulchre now in the British Museum, as—

NeT'-eK MA ChaFT-U-K<sup>31</sup>  
Avenging thee upon thine enemies.

The verb ChU, (39) to cover, to protect, is found in the phrase

ChU Si RA RaMeSSU HiK AN MA CheT  
Guarding the Son of the Sun, Ramses III., ruler of An, from all  
NeB TU<sup>32</sup>  
things evil.

The deceased says in the Hall of Truths—

AU-A UBe ChU-K-UA MA TeNTI-U<sup>33</sup>  
I am pure, guard me from revilers.

The ordinary preposition in the phrase “justified against the enemy”, is eR. In the 124th chapter, however, of the Ritual we have (line 10) —

AU MACheRU (N) MA NeTeR NeB NeTeR-T NeB eNTI  
Is justified the departed against every god (and) every goddess who is  
AMeN eM NeTER-KeR<sup>34</sup>  
hidden in Hades.

<sup>31</sup> Sharpe, Egyptian Inscriptions, pl. 75, l. 4. Cf. Todt. 17, 90. 69, 1. At 78, 9. I am doubtful whether the first MA should be translated *from* or *by*, *e manu*, or simply *manu*.

<sup>32</sup> Champollion, Monumens, pl. 214.

<sup>33</sup> Todt. 125, 63.

<sup>34</sup> On the other hand eR is found where we might expect MA, as in the common phrase, “pure from iniquity”, UBe eR TU. The fact is, *from* is one of the significations of eR, as in the following passages—

In the 15th chapter (l. 9) we have the words—

AMeN(40)-TU-F MA-SeN  
*Abditus ille ab illis.*

The 94th chapter is entitled—

Re eN TeBHU MeSeT PeS MA TuT  
*Chapter of praying for a slab (and) inkstand from Thoth.*

(M. Devéria translates this: adresser une prière à Thout . . . avec une palette et un godet à la main.)

In every one of the passages quoted the Coptic language would employ the preposition εβολζα or one of the words nearly related to it, and never εεε. In fact the three examples cited by Champollion ought to be translated "from his father".

The particle MA has, however, like its Coptic equivalents, a more extensive sense than our *present* word *from*.<sup>35</sup> εωβ-πυβεν εγωωπι εβολζιτοτϣ, is the Coptic version of "All things were made *by* Him", in the Gospel. In like manner, for "Let him kiss me *with* the kiss of his mouth", we have εβολζη επειπτεϣταπρο. This should lead us at least to examine whether MA were not used as before the ablative of the instrument. I find it so used in the following sentence from the tomb of Ameni at Benihassan—

BeK-U NeB eN SuTeN Pa HeR-ChePeR MA-A<sup>36</sup>  
*The labours all of the royal dwelling were accomplished by me.*

AN TeNA-UA eR MAA-NA NeB-U TIAU (1, 18.)  
*I am not prevented from seeing the Lords of the starry dwelling.*

AN RAAU eN Ba-F eR Cha-F (89, 7.)  
*non tolletur anima ejus a corpore ejus.*

CheM-A eM HaTI-A CheM-A eM A(?) -UI-A CheM-A eM RaT-(TI)-A  
*I prevail with my heart, I prevail with my hands, I prevail with my feet,*

eR-A MeR Ka-A AN ChNAM-TU BA-A eR Cha-A HeR  
*I do the will of myself, not taken away (is) my soul from my body at*

TIAU-U eN AMeNTI (26, 5.)  
*the gates of Hell.*

AN ChNAM eN NuTeR-U HoTeP-U-TeN eR-A CheR-SeN eR-A HeR  
*Non rapiunt dii panes vestros a me prociidunt coram me in*

HRa-U-SEN (29, 2.)  
*faciebus eorum.*

The "Chapter of eradicating the deceitfulness (or baseness) of heart" ends thus (14, 4)—

TeR SchePTI NeB eNTI eM HeT eR-S  
*Delentur turpia omnia quæ (erant) in corde ab illo.*

<sup>35</sup> That our word *from* once had a wider signification than at present will be seen from the following passages of King Alfred's Orosius—

Fifty men were slain in one night, ealle fram hiora agnum runum, all by their own sons.

Ic eac fram him ofer-wunnen eom, I also am overcome by them.

Carthage that was built, fram Ehpann, etc., by that woman Elisa.

<sup>36</sup> Lepsius, Denkmäler, II., Bl. 121. Compare Mr. Birch's translation,



Dr. Brugsch, in his recent History of Egypt, translates the last words "par mon bras", which is, of course, perfectly unobjectionable if it be not meant (as it might easily be understood) as a literal translation of the group MA-A, or as implying a different group eM (A?)A,<sup>37</sup> in which the *arm* is taken in its ideographic value. There are passages in which this latter interpretation is impossible. In the Hall of the Truths, for instance, the Floor refuses to let the departed pass over it—

HeR-eNTI AN ReCh-eK ReN eN RaT-(Ti)-K CheNT-eK

*Because thou tellest not the name of thy two feet* {*thou (wouldst) tread*  
HeR-A MA-SeN<sup>38</sup> {*i e., with which thou*  
*upon me with them.*  
*wouldst tread upon me.*

In the 49th chapter (l. 2) it is said—

AN eRTA-NA CheR MA-A ChaFT-U-A PU  
*Non[-ne?] datur mihi profligari a me inimicos meos.*

In another reading of this passage (11, 3) the verb used is TeR, *to destroy*.

I conclude these notes on the signification of MA with the following passage from the 42nd chapter (l. 13) of the Ritual—

eRTA- NeF ANCh-eF MA-SeN KI-T'aT MA-TeN.  
*Datur ei vita ejus ab illis [aliter a vobis.]*

(10) eM *in*.—Champ. Gram. p. 450.

(11) AN. The hieroglyphic name of Heliopolis, which is found on the most ancient obelisk that is known, that of Sesertesen I., was first read with certainty by Dr. Brugsch,<sup>39</sup> although it had been rightly guessed at before the proofs were forthcoming. The Biblical name of the city is יִרְסָה, and this name is proved to have been the same as the Egyptian by the comparison of such variants as (41) and (42) of the name ReAN(TI). Two cities bore the same name: Hermonthis was called AN ReS, "An of the South"; Heliopolis, AN MeHiT, "An of the North". The Greek name of the latter town (like the sacred names Pa-Ra, Aa-Ra, "house of the Sun, city of the Sun"),<sup>40</sup> is derived from the worship of the Sun-god Ra, under the names of HoR-eM AChU "Horus of both horizons", as the rising Sun, and TUM, or ATUM, as the setting sun.<sup>41</sup> The "Spirits of An", by whom Sesertesen is said upon the obelisk to be beloved, are, according

"All the work of the king's house was done *by me*". (On a remarkable Inscription of the 12th Dynasty, p. 19).

<sup>37</sup> As in the passage (Rosellini, Mon. Stor., p. xlv), "His bow is *in his hand*", eM A (?) -F. The plural of this group is by far more common than the singular.

<sup>38</sup> Todt 125, 59.

<sup>39</sup> Geographische Inchr. I. p. 170.

<sup>40</sup> Ib. p. 254, sqq.

<sup>41</sup> See a representation of Ra-Hor-m-achu-Tum, Belmore Papyrus, pl. III.

to the Ritual,<sup>42</sup> Ra, Schu, and Tefnet, the two latter divinities being, as we know from other texts, the son and daughter of Ra.

(12) RA. The sundisk ideographic of the god Ra (Coptic ϣϣ) followed by the hatchet as the determinative of Gods.

(13) PU. The use of this particle, as a copula, was illustrated in the last number of the ATLANTIS as far as was possible by the mere quotation of examples. It is, however, found attached to verbs as well as substantives, and to substantives which are neither subjects nor predicates of prepositions. In the latter case, at least, its use is analogous to that of the pleonastic *οοι* of the Syriac Grammar.<sup>43</sup> And on comparing variants of the same text, PU will be found in one, whilst it is left out of another.

(14) T'eSeF. The particle T'eS has the signification *ipse*, and takes the suffixes of the personal pronouns,<sup>44</sup> thus—

UTeN-NA	NeCheB-eK	eM	AK-UI-A	TeS-A <sup>45</sup>
<i>Describo</i>	<i>titulum tuum</i>	<i>digitis meis</i>		<i>ipsa ego.</i>
Se-UT'A-K-UA	SchA	Se-UT'A-K-TU	TeS-eK <sup>46</sup>	
<i>Make me whole</i>	{ <i>as thou hast been made</i>			<i>thyself.</i>
	{ <i>whole</i>			

The third person masculine T'eSeF will be found in innumerable places; the feminine T'eSeS, and the plural forms occur less frequently.

The second part of our text will be better understood with an English than with a Latin translation—

(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
T'aT-TU	SchAU	eR-F	eM	T'aT	SAu	SchA	SU
<i>(It is) said Cat to him</i>			<i>from (his) saying Sau like it, i.e., Schau.</i>				
<i>i. e., he is called Cat (Schau)</i>							

Sau is the name of a god which Ra pronounced like the Egyptian word meaning Cat, and in consequence of this he was himself called by the name of that animal. Our text does not explain the circumstances which led the Sun-god to indulge in a vicious pronunciation similar to that which at the present day characterises the Jewish mode of speaking English and German, and the reverse of that which proved so fatal to the men of Ephraim on a memorable occasion.<sup>47</sup> We have here, however,

The 15th chapter of the Ritual (the most poetical in the book), which consists of a hymn to the Sun, shows that the names of that deity were not rigidly confined to the occasions mentioned in the text.—See, e. g. line 36.

<sup>42</sup> Chap. 115, 7.

<sup>43</sup> See examples of this in the Lexicon (p. 126) of the Syriac N. Test., edited by Leusden and Schaaf, and the observations of Michaelis, Gramm. Syr. §. 133.

<sup>44</sup> See Birch, Introduction, p. 254.

<sup>45</sup> De Rouge, stèle Egyptienne, p. 51.

<sup>46</sup> Todt. 71, 1.

<sup>47</sup> Judges, xii, 6. It is a very curious fact that the Hebrew *S* almost invariably corresponds to the Arabic *Sch*, and the Hebrew *Sch* to an Arabic *S* in the words common to both languages.

a specimen of those etymological myths for which the Egyptians seem to have had a predilection. Myths of this kind, which are not the spontaneous growth of popular imagination, but the result of rationalizing reflection, seem to have been much more common among the ancient Romans than among the Greeks.

Although the sounds S and Sch are naturally allied in the Egyptian as in other languages, the affinity cannot be said to have been very great. Nor does the preference for one of these sounds rather than the other characterize any of the different ages or dialects of the language.

(15) The word T'aT which occurs twice in this sentence is the most frequent of all hieroglyphic groups, and corresponds to the Coptic forms  $\chi\alpha\alpha$ ,  $\chi\epsilon$ ,  $\chi\omega$ .—Champ. Dict. p. 174. The final syllable TU, which, in some inscriptions, that of Rosetta for instance, is written UT, is the participial termination, and corresponds to the Coptic  $\sigma\tau\tau$ .—Champ. Gr. p. 429.

I have elsewhere spoken of the Egyptian habit of writing vowel letters after consonants before which they were probably pronounced. According, however, to the system of transcription adopted in these articles, each sign is transcribed exactly in the order in which it comes in the hieroglyphic text, without prejudicing the question which may arise as to the real order in which these signs are read.

(17) eR-F to him. The phrase, "Simon who is called Peter", is translated into Coptic  $\pi\epsilon\tau\rho\omega\sigma\tau\alpha\varsigma \phi\eta\epsilon\tau\ \sigma\iota\mu\omega\sigma\tau\ \epsilon\rho\omega\gamma$   $\chi\epsilon\ \pi\epsilon\tau\rho\sigma$  that is, "Simon who it is called to him Peter". In the same way we find  $\sigma\iota\gamma\alpha\kappa\iota \epsilon\tau\omega\sigma\tau\ \epsilon\rho\omega\gamma\ \chi\epsilon\ \pi\alpha\zeta\alpha\rho\epsilon\theta$ , "a city it is called to it Nazareth". This form of expression exactly corresponds to that used in all the Semitic languages.

הוי האמרים לרע טוב ולטוב רע

Woe to them who say to evil good, and to good evil!<sup>48</sup>

that is, "who call evil good, and good evil!" In like manner the Arabic  $يَقَالُ لَهُ اِبْرَاهِيْمُ$  "it is said to him Abraham",<sup>49</sup> i.e., "he is called Abraham". This idiom, however, is not peculiar to the Eastern languages, though I am not aware of its being classical in any other. There are parts of France and Switzerland in which the peasants say, "On lui dit Jean", for "he is called John".

A text quoted on account of the paronomasia contained in it, in the last number of this Journal<sup>50</sup> from Brugsch's Geography, ought, I think, to be read as follows—

<sup>48</sup> Isai. v, 20.

<sup>49</sup> Koran, xxi, 61.

<sup>50</sup> ATLANTIS, IV., p. 366, n. 70. Brugsch Geograph. Inschr. I. p. 163.



KA-TU eR ReN HeSP TeN TeB eM TeB HoR TeBH.  
*It is called to the name of this nome Teb from wounding Horus Typhon.*  
 i. e., *The name of this nome is called Teb because here Horus wounded Typhon.*

In other passages the particle eN<sup>51</sup> is used instead of eR, as—

Pe MU eNTI AU-T'aT-NeF TA-KeT-eN-TA-TeBT-U.<sup>52</sup>  
*The water which { it is said to it } the "Pool-of-the-Fishes".*  
 i. e., *is called*

The "Spirits of the West", according to the 108th chapter of the Ritual, are Tum, Sebek the Lord of Becha, and

HaT-HoR eM MaScheR T'aT eR HeSe.  
*Hathor (goddess) of evening { said to Isis,*  
*i. e., a name by which Isis is called.*

(20) SAu. The sitting figure at the end of the group is the determinative placed after the name of a god. The first sign of the name<sup>53</sup> is found with the value S in the names and titles of Roman emperors. It is also found<sup>54</sup> in the variants (43) of the name To-SeN, Esne. These authorities are, indeed, of late periods, and ought not to have much weight if earlier evidence were available in support of another reading. But I am not aware that convincing proof has ever been brought forward in favour of an other value. Words in which the sign occurs may be explained by Coptic equivalents, beginning with S as well as with any other letter. Nothing short of a well-established variant of a respectable date can decide the question.

The god SAu is mentioned several times in the Ritual, and his name is written with and without the final U. It is said in the 17th Chapter (l. 24):—

HU SAU.... UN-NU eM-CheT TeF-U Tum  
*Hu (and) Sau they are with their father Tum.*

Sau is one of the three gods or "spirits" of Hermopolis,<sup>55</sup> and

<sup>51</sup> Compare Champollion's Dict. p. 173.

<sup>52</sup> Brugsch, ubi supra, p. 166 (697).

<sup>53</sup> Calligraphic varieties of this sign are found. Compare *Todt.* 80, 1, with the corresponding passage of the Cadet papyrus (Description de l'Egypte—Antiq. ii., pl. 74, l. 20). Salvolini, after Champollion, assigns to it the value S. Mr. Birch distinguishes between the different periods, and gives it the value Ka in the earlier periods, S in the later. I do not know what arguments there are in favour of the value Ka, though I think I can guess at one or two of them. Brugsch keeps to the value S or Sa. The sign itself seems to represent a tissue—(See Rosellini Mon. Civili, pl. xlii., and the corresponding text vol. 2, p. 27. Compare *Todt.* 110, a. 4), which points to the Coptic CWZE (or CWZI) and to SE. These words are so extremely like each other, that I am almost tempted to look upon the former as a compound word implying the root CW, to weave (?).

<sup>54</sup> Brugsch's Geogr. Inschr. i., p. 168. Cf. 145, 81. 83.

<sup>55</sup> *Todt.* 114, 4; 116, 3.

he is found on monuments both alone and in company with his brother Hu.<sup>56</sup>

(21) SchA *like*, is the Coptic Ⲭⲁ, but the sense of it has been best preserved in the doubled ⲬⲁⲬ, Ⲭⲉⲩⲱ, Ⲭⲱⲩⲱ, *similis, par, æqualis*. It has been copiously illustrated in Champollion's Grammar, p. 477.

(22) SU is a personal pronoun *he, him, it, they, them*, and in our text refers to the substantive SchAU. Champollion describes this pronoun as a "complément direct du verbe".<sup>57</sup> Dr. Brugsch expresses the strongest approbation of this view, and at first sight Mr. Birch's "Introduction" seems to agree in looking upon SU as a mere accusative form.<sup>58</sup> A translation, however, which occurs in the last mentioned work,<sup>59</sup> leads me to think that Mr. Birch only insists upon the accusative use of SU, without denying that it may be taken as a nominative. In the translation to which I refer, we find it said of the tower built by Ramses II.—

"Su er shua Taha er a Merter      It holds Taha for Egypt  
 "Su kha skhar Annu rasu      It is like a picture of South Anu.

The most recent works of Dr. Brugsch may also be cited in favour of Su as a nominative as well as accusative form. The celebrated inscription of the Vatican speaks of Darius<sup>60</sup>—

AS HeN-F eM ARAM AS SU eM UaR Aa eN SeT  
*Whilst his holiness was in Aram, when he became the Great King of the whole*  
 NeB  
*world.*

In the Anastasi Papyrus (No. 1) we read of—

TeSchA eM Pe IU MA TaR eN MeRU ReN-eF AT'A-TU-F MU eM  
*A fortress in the sea, Tyre of the waters (is) its name, it receives water in*  
 BARI-U SeSeR SU eM RaM-U eR SchA-U  
*barks, rich it (is) in fishes for food.*

The same papyrus contains other examples of Su as a nominative—

I . . . RAI eM-SchA SU SchA Ach.  
*I . . .rai likewise, it (is) like what? i.e. nothing can be*  
*compared to it.*

SU RoT eM UN-TU<sup>61</sup>  
*It (is) blooming with (?) trees.*

<sup>56</sup> See Sharpe Egyptian Inscr., 2 series, pl. 19. Lepsius, Denkmäler, iv., pl. 17. I know of no reason for suspecting an identity between the god Sau and the god Ka (*Todt.* 105, 1), or between either of these and the god whose hieroglyph occupies the third place on the Egyptian cubit. No reason has yet been given for confounding the latter sign with the alphabetic sign K.—Cf. Lepsius, Ueber den Ie Götterkreis, p. 185.

<sup>57</sup> Gramm., p. 287.

<sup>58</sup> Introduction, p. 253.

<sup>59</sup> *Ib.*, p. 267.

<sup>60</sup> Geogr. Inscr. i., p. 68 (354).

<sup>61</sup> *Ib.* ii., p. 43 (128), p. 54 (163).

Many other examples might be quoted, but I have thought it better to confine myself to the passages already translated by authorities which might be supposed to tell against the view I am maintaining. It may readily be granted, on the other hand, that the number of passages in which SU appears as an accusative, is apparently far greater than that of such as have already been cited. Two examples will suffice:—

HoR PU (N) MeS SU HeSe ReNeN SU NeBT-HA SchA  
*(The departed) is Horus, bringeth him forth Isis, nurseth him Nepthys, as*  
 ARi-SeN eN HoR<sup>62</sup>  
*they did to Horus.*

SeCheR-eF SU CheNuR-eF SU SchA TeHA-U eR-HaT PeNiF-U<sup>63</sup>  
*He overthrows them, he disperses them like reeds before the winds.*

The third part of our text merely repeats the statement, that in consequence of the Sun-god's mis-pronunciation of his son's name, he received the nickname of "Cat".

(23) (24) (25) (26) (27) (28) (29) (30)  
 eM NeN ARi-NeF ChePeR ReN-eF PU eN SchAU  
*From so he did } became his name (that) of Cat.*  
*i.e. from his doing so*

(24) NeN. The reading of this group is proved by the variants of such names as ToNeNT<sup>64</sup>, Totunen, Tanen, Senen, etc. The two lines (N, N) are, therefore, the phonetic equivalents of the initial signs, which are also interchanged with the sign (46). The word NeN has been explained by M. de Rougé. "Its first meaning is *likeness*; as an adverb, it corresponds to *sic*; as a demonstrative pronoun, it is found either with a plural substantive, as *nen neteru* 'these gods'; or by itself, signifying *this, that, these things*, viz., those which have just been mentioned, as in the usual phrase of the papyri *Ha-sa-nen* 'after that'. The compound form "SchA-NeN" *like*, has also been explained by the same illustrious scholar.

Several passages have already been quoted, in which NeN occurs. A few more will still farther illustrate the use of the word:—

NoK HeSARi NeB ReSTi NeN(-NU) eNTI eM APe CheT<sup>66</sup>  
*I am Osiris the lord of Resti, the same who (is) at the top of the staircase.*

<sup>62</sup> *Todt.* 134, 6.

<sup>63</sup> Rosellini, M.R., pl. 108.

<sup>64</sup> See Variants (44) and (45). Lepsius, *Ie Götterkreis*, p. 198.

<sup>65</sup> *Stèle Egyptienne*, p. 150. Compare "Notice de quelques textes hieroglyphiques récemment publiés par M Greene", p. 28, 31.

<sup>66</sup> *Todt.* 22, 2. Some light will be thrown upon the expression "at the head of the staircase", by such pictures as *Descript. de l'Egypte, Antiquités*, plates 58 and 64, or by such as *Champ. Mon. III.* 272. In the last of these pictures Osiris is depicted as forming the prop of the balance, which is placed at the top of a staircase which men are ascending.



So again, "the gods behind Osiris are, Amset, Hapi, Tiaumutef, Keksenuf":—

NeN PU eNTI eM-Sa Pe ChePeSch eN Pe MeHiT<sup>67</sup>  
*the same who are behind the "Thigh" of the northern sky, i.e., the constellation of the Great Bear.*

Among the privileges enjoyed by the departed, we are told in a rubric, of which a part has already been quoted:—

UN-NeF eM NeTeR eR HeH SeRuT HA-U-F eM NeTeR-KeR  
*He becomes a God for ever, made to flourish are his limbs in Hades*  
 AN TeT ARi-T NeN TeSeF eN HeSARi eR eRTA UBeN MUU  
*through Thoth who did [this or thus] himself to Osiris, to make a ray of light*  
 HeR Cha-F<sup>68</sup>  
*with his body.*

The 99th chapter speaks of corn and barley seven cubits high in the fields of Aanur, reaped by the ministers of Horus; of the beatified soul it is said:—

USchA CheR-F eM NeN KeTTI BoTI  
*Edit autem ille ex illo tritico et hordeo.*

(For the reading KeTTI compare lines 4 and 8 of chap. 149).

SchA-NeN is found in passages like the following:—

Ta-K HA-A eR HeH SchA-NeN-(NU) ARi-NeK HeNA TeF-eK  
*Grant (that) I may go on for ever as thou hast done with thy father*  
 TUM c. 154, 3.<sup>69</sup>  
*Tum.*

SchA-NeN ARi-TEN eN ChU SeCheF AP-U AM-U ScheSe NeB-SeN  
*Quemadmodum fecistis spiritibus septem illis qui sunt in ministerio Domini eorum*  
 c. 17, 33.

(25) ARi-NeF *he did*. We have here the verb ARi, *to do*, the final F is the sign of the third person singular masculine, the N which precedes it indicates the perfect tense. As all traces of the original pronunciation are irrecoverably lost, it is impossible to say whether the ancient

<sup>67</sup> *Todt.* 17, 35.

<sup>68</sup> *Todt.* 101, 8. I am not quite sure about the true sense (in this passage) of the group eRTA. If it signifies *make*, as it does in many places, the preposition HeR means "out of, with", as in the phrase "made with wood". See the description of the talismans (155, 2; 156, 3), MeNCh HeR CheT eN NeH, "made out of the trunk of a sycamore".

<sup>69</sup> Compare line 4—

SchA-NeN ARi-NeK eR NeTeR NeB NeTeR-T NeB  
*As thou hast done to every god (and) every goddess.*

I am not yet able to follow Mr. Birch in reading MA everywhere, instead of Ta, for the Arm supporting a pyramidal object. Yet many passages of the *Todtenbuch*, on being compared together, would seem to confirm Mr. Birch's transcription. Compare, e.g., the first and second lines of Chap. 57. But compare also 54, 1, and 56, 1. Synonyms may often be mistaken for variants. And that synonyms frequently occur in passages otherwise identical, is generally admitted. Compare 136, 24 (or 164, 15) with 165, 15. The texts signify "he drinks water out of the depths of the river", but in one text the preposition HeR is used for "out of", in the other the preposition eM.

Egyptians made a distinction between the sound of eRTA-NeF *dedit ille* and eRTA-NeF *datur illi*, N, in the latter instance, no longer being the sign of the perfect, but the particle N signifying *of, to*, etc. The termination NA (or NeK, NeF, etc., according to the person) is often found in a sentence with both significations. Nothing but the evident sense of the passage can enable us to distinguish between them. Thus—

CheSeF-NA	APeP	Se-HeM-NA	RaT-U-F	eRTA-NA	RA
<i>I repulsed</i>	<i>Apophis,</i>	<i>I made to retrograde</i>	<i>his feet,</i>	<i>lent to me</i>	<i>Ra</i>
A(?) -UI-F	AN	CheSeF-UA	KeTI-U-F <sup>70</sup>		
<i>his arms,</i>	<i>did not repulse me</i>	<i>his divine satellites.</i> <sup>71</sup>			

<sup>70</sup> Todt., 100, 3. Very nearly the same text is found (Ch. 129, 3), only with the third person, instead of the first. It is interesting to compare the parallel forms. CheSeF-UA, “repulsed *me*”, corresponds to CheSeF SU, “repulsed *him*”. So MAA-SeN-UA (Ch. 78, 26), “they see *me*”, answers to the frequent phrase, MAA-SeN-SU “they see *him*”. It follows, that UA indicates the reflected form when it comes after the verb in the first person.

<sup>71</sup> “Satellites” is here given as a mere provisional translation of the proper name KeTI-U, which requires some explanation. It is not without considerable hesitation that I venture for once to abandon a reading supported by the authority of M. de Rougé, even though it be in order to follow one which has in its favour the names and arguments of men like Lepsius, Birch, and Brugsch. The names of the Decan *Seket* and the city *Rakoti* (Alexandria), in which the sign (47) occurs, appear to counterbalance the fact, that it is often found preceded by an initial A. (Cf. de Rougé Notice de quelques textes hiéroglyphiques, p. 28). This initial A may be accounted for exactly in the same way as that suggested by M. de Rougé for the A often found before the group *Chu*; “je sais que ce radical ainsi que beaucoup d’autres, se présente souvent dans les rituels antiques, avec une ou deux voyelles initiales. C’est ce qui a engagé, sans doute, M. Birch à lire *ach*; mais la valeur de, etc., étant certaine, il ne faut voir dans ces exemples qu’une voyelle initiale ajoutée au radical simple; ce que les langues égyptiennes et coptes admettent très facilement”. (Essai sur une stèle égyptienne, p. 95.) It is interesting to note that the Coptic root Kⲧ, *build*, is precisely one of those which are found with an initial vowel. See Tattam Lexic. Ægyptiac., p. 78. The Coptic and Egyptian resemble the Semitic languages in their frequent use of the *prosthetic* vowel. Compare Gesenius, Lehrgebäude d. hebr. Sprache, p. 139.

The gods called KeTI-U, are repeatedly mentioned in the Ritual (3, 2. 15, 26. 130, 15. 22. 140, 9. 144, 20. 149, 31). They were attached to the Sun, and followed him in his course. The deceased addresses the Sun (101, 1):—

HeFT-eK HeR MAHU eN UA-K AU-ChNuM-NA eM KeTI-U-K  
*Thou restest on the oar of thy bark, I am joined to thy satellites.*

In the previous chapter (100, 7) we had been told about the deceased, that—

eRTA-ChN uM-eF eM PuT NuTeR-U AM-U CheT RA Se-HaT'  
*He is joined to the cycle of gods who are with the Sun, he enlightens*  
 Ta-(Ti) ChaFT-SeN  
*the earth together with them.*

In one of his “Ægyptische Studien”, Brugsch quotes a passage from the 130th chapter (l. 21), to the effect, that the Decans “in grosser Freude seien indem sie ergreifen die Spitze der Sonnen (Barke)”. The quotation stops short of two important words, and the end of the sentence is literally—

CheP-SeN HaT eN RA MA KeTI-U-F  
*Captant caput solis ex satellitibus ejus.*

One of the most interesting parts of M. de Rougé's invaluable

These gods are frequently alluded to under the name of the "limbs of the Sun", as when it is said of the departed (ubi supra, l. 28), that "he sees the Sun-god in his members". In the 17th chapter, the interrogation "I am the great god, self created", is thus explained (line 4)—

RA PU KeMa HA-U-F ChePeR NeN NeTeR-U AM-U-CheT RA  
*The Sun it is who made his limbs, who created those gods which are with the Sun.*

Here the parallelism of the sentence (Cf. de Rougé, Tombeau d'Achmes, p. 110. Birch, *Mémoire sur une patère égyptienne*, p. 9) requires that the same relation should exist between the accusatives of KeMa and ChePeR, as between those verbs themselves. Now, these verbs being synonymous, it follows that "those gods which are with the Sun", are "his limbs", and they are so thoroughly identified with him that, from having made them, he is said to have created, or given birth to himself. Another text bearing, I think, on the subject, is found, *Todt.* 17, 74,

ChePeRA HeR-HeT UA-F PTU-U TeT-eF  
*The Creator in his bark, the gods (are) his body.*

(I omit the initial interjection, and the various readings T'eSeF and T'eTa at the end. ChePeRA, *the Creator*, is, as we are told at line 79, Hormachu, one of the forms of Ra.)

In a passage already quoted from the Ritual, it is, I think, said, that the body of the departed was made into a ray of light. Are we to interpret by the solar rays these KeTI-U, or "gods which are with Ra", and repulse his enemies, "his divine limbs", one with himself, to which the beatified spirit is united after death, in company with which he illuminates the earth, and from which the constellations catch the first glimpses of the Sun-God?

It is, perhaps, unsafe to look in the Coptic for the etymological affinities of the word KeTI. Still it is worth noting, that KW† signifies "encircling", and is found in numberless passages of the Coptic scriptures with this sense. "Going round", and "carrying or bringing round", are derived meanings, of which the hieroglyphic Se-KeT offers numerous examples in the Ritual, beginning at chap. 1, line 18 (where the deceased sees Orion go round), and continuing all through the book, the most frequent instances referring to the bark of the Sun.

In the well-known text, in which it is said of the god Chnum, who is represented as fashioning man with a potter's implements,

KeT-NeF SU eM A(?)-UI-F  
*He made him with his hands,*

KeT, perhaps, corresponds to the Coptic KE†, *œdificare*. It is no argument against this, that to *form* and to *build*, are different notions; for if so, it would equally tell against the evident relationship between the English *build*, the German *bilden*, and the corresponding Dutch, Flemish, and other Teutonic words which are used with reference to painting and sculpture. A still stronger argument is the fact, that the group KeT is really found replaced by the ideograph (Pl. II. 76) of a man *building* a wall. See, for instance, the legend at Philæ (Champollion's *Mon.* I. pl. 89, or Rosellini *M. del Culto*, pl. 77), where the god Chnum "*builds* the divine limbs of Osiris".

Another important word, in which the sign (47) occurs, is KeT-TI, *wheat*, *Todt.*, 149, 8. This word has certainly as much resemblance to the Hebrew חִטָּה and the Syriac ܚܝܬܐ as the Sanskrit *godhū-ma* from which von Bohlen supposed the Semitic names of wheat to be derived, and from which he would certainly have derived the Egyptian name had he known it. Other Semitic names of wheat, however, are the Arabic حَبْطَة and the Chaldaic ܚܝܬܐ, and the question has naturally been raised, whether the letter N in these words is radical, and has only disappeared from the Hebrew and Syriac in consequence of



Memoir on the inscription of Ahmes, is that in which he has called attention to this point.<sup>72</sup> He has shown how in many instances N is replaced by the particle AN (*by, through*) which leaves no doubt as to the function it discharges. Perhaps we are as yet very much in the dark as to the real nature of the Egyptian tenses, and the darkness may be greatly increased by a wish to identify them with the tenses of European grammars. eM NeN ARi-NeF cannot literally be translated into good English or Latin, if ARi-NeF be taken as a mere perfect tense, but it is possible that ARi is taken substantively as in the cases cited by M. de Rougé, and that the whole should be translated "from this doing by him".

(26) ChePeR. The Beetle is found in several names of Roman emperors, and in all of them with the value T or D. Mr. Birch has, however, shown that, in the earlier times, its value was ChePeR.<sup>73</sup> This is proved by variants of all ages, from the time of the Pyramids downwards, and is now generally admitted. One solitary piece of evidence which has been asserted<sup>74</sup> in favour of another value during the Pharaonic ages has never been verified. It is to Mr. Birch also, and M. de Rougé after him, that we are indebted for the full illustration of the different

its being assimilated in those languages by the stronger sound of the T. Such is the opinion of Gesenius, who, in his Thesaurus, is disposed, like Celsius, to refer all these names to an Arabic root signifying *red*. On the other hand, it would seem hazardous to lose sight of a very decided and well-known tendency of the Chaldaic, Arabic, and Æthiopic languages to interpolate the letter N in places from which it was originally absent. Thus the Greek word *μυχανή* is transcribed *manguane* in Æthiopic, and the Arabic حنزبر *a pig*, is the equivalent of the Hebrew חזיר and the Syriac ܚܙܝܪ. The Sadducees are called in the Arabic Versions الناذرة (Cf. Gesenius, *Lehrgebäude der hebr. Sprache*, p. 863; Dillmann, *Gramm. d. äthiopischen Sprache*, pp. 88, 110.) If we look beyond the Semitic languages, we find the Persian name گندم *gandhum*, a form intermediate between the corresponding Arabic and Sanskrit words. It is found in the Turkish, Hindustani, and Malay languages, and, with slight modifications, in the Kurd, Afghan, and other dialects. The English *wheat*, the German *weizen*, the Scandinavian *hveiti*, the Mæso gothic *hwaite*, the Lithuanian *kwēti*, have generally been held cognate to the Hebrew חֲמֵץ. If this relationship were once securely established, it would appear that the many different names of wheat are reducible to a single type. As I am unable at present to state the earliest date of the word KeT-TI, I am not prepared to assert that the type had its origin in Egypt; though, as that country was already the granary of the world in the patriarchal times, and as the use of wheat was known there in the very earliest ages of its history, and for centuries prior to the remains of any other language, it is hardly supposable that the Egyptians should have dropped an indigenous for the foreign name of so important an article of food.

<sup>72</sup> Tombeau d'Ahmes, p. 170.

<sup>73</sup> *Revue Archéologique*, vol. 5. De Rougé Tombeau d'Ahmes, p. 51, sqq.

<sup>74</sup> By M. Poitevin (*Rev. Arch.*, vol. XI., p. 596), who says, that the Beetle stands in *ancient* rituals for the T in Atum.

meanings of the word, the Coptic form of which is  $\psi\epsilon\pi$ ,  $\psi\omega\pi\iota = \gamma\acute{\iota}\nu\epsilon\sigma\theta\alpha\iota$ . We have already seen the affinity between the articulations Ch and  $\psi$ . Another remarkable phenomenon in the history of the language is the loss in many words of the final R, a change similar to that from the Latin *frater*, *mulier*, to the Italian *frate*, *moglie*. Champollion had already noticed this phenomenon, and more recent inquiries have only confirmed his views. The Coptic has preserved traces<sup>75</sup> of this change, principally in the double forms (with or without the final R) often found of the same word.  $\Delta\text{gop}$ ,  $\text{RepRep}$ ,  $\text{Mepe}$ ,  $\text{Twepe}$ ,  $\text{Zoker}$ ,  $\text{ZTwp}$  are found concurrently with the more recent forms  $\Delta\text{go}$ ,  $\text{ReRe}$ ,  $\text{Me}$ ,  $\text{Twee}$ ,  $\text{Zko}$ ,  $\text{ZTo}$ .<sup>76</sup> And, on the other hand, hieroglyphic and demotic texts are not wanting to prove that this change began with reference to some words at an earlier period of the language than the Coptic. Mr. Birch has quoted a variant ChePI as an equivalent to the group made up of the Beetle and the two Reeds. At Edfu, the common expression ChePeR T'eSeF, *self created*, is written CheP T'eSeF.<sup>77</sup>

It is impossible in an article like this to quote examples in sufficient number to illustrate the various uses of the word ChePeR. We must be content with noting, that its primitive sense is "becoming", and that it is employed both transitively and intransitively.

As an example of the intransitive use of the word we have—

ChePeR	CheRI-U	eM	NuTeRU	eM	CheRI-U-F <sup>78</sup>
<i>Fiunt</i>	<i>boves</i>		<i>deorum</i>		<i>boves ejus</i>

The transformations which the departed is represented throughout the Ritual as constantly undergoing after death, are called ChePeR-U, a word which M. de Rougé has shown<sup>79</sup> to have been

<sup>75</sup> It is interesting to observe, that Peyron, in his Coptic Grammar, is sometimes obliged to have recourse to a paragogic P, to explain the identity between forms which really represent the more ancient and the more modern ages of the language. His classification of some of the forms in R as irregular plurals, is untenable in fact; and, at all events, the fact would still remain to be explained. The simplest explanation of the form  $\text{ZTwp}$  is surely found in the hieroglyphic HTR, written over a *horse*, on a large number of monuments.

<sup>76</sup> Compare, also, such forms as the Sahidic  $\Delta\text{gpo}$ , *why*, with the Memphitic  $\Delta\text{go}$ , or the Sahidic  $\text{gpa}$ , *a face*, with the Bashmuri  $\text{ga}$ , and Memphitic  $\text{go}$ .

<sup>77</sup> See Brugsch, Geogr. Inschr., i. Taf, xxxiv (700) c.

<sup>78</sup> *Todt.*, 112, 6.

<sup>79</sup> Tombeau d'Ahmes, p. 110. Another synonym of ChePeR-U is AR-U (*Todt.*, 17, 51), which, perhaps, points to ARi *facere*, as a synonym of ChePeR. That ARi is = MeS, was explained in a former article.

used synonymously with MeS-TU, *birth, coming into being*. To the examples quoted by M. de Rougé, it may be added, that the phrase MeS T'eSeF, "giving birth to himself", is used synonymously with ChePeR T'eSeF.<sup>80</sup> Hence, the sense *produce, create*, as in the following passage—

ChePeR-NeF SeM-U RuT-NeF UeT'-UeT' NeB<sup>81</sup>  
*He made to grow the grass, he made to flourish all things green.*

If we add that, in the phrase "he made his enemies *not to be*", eM TeM ChePeR is found as the synonym of eM TeM UN, it will appear that *fieri, facere*, and *esse*, are three different significations of the word ChePeR. From these three principal significations all the others are easily derived.

(27) ReN-eF, *his name*. This word is the Coptic  $\rho\alpha\tau$  with the pronominal suffix of the third person masculine. The group is followed by the pleonastic PU, and the final group (eN SchAU, *of Cat*) requires no farther explanation. A phrase precisely similar to that just explained, is found in the 112th chapter (l. 7) ChePeR ReN-eF eN HoR . . . *His name became that of Horus*.

It is not likely that this paper will be read by any one who believes that the secret of the hieroglyphic writing is lost for ever, and that the latest as well as the earliest attempts at decipherment and interpretation have been made in vain. The paper is more likely to fall into the hands of readers who, without any decided disbelief in the success of Champollion and his successors, are yet in a state of absolute uncertainty as to the degree of confidence which may be placed in such translations as have been given in these pages from hieroglyphic texts.

To such persons I can only offer the test which they would probably themselves adopt, were they obliged to form an opinion as to the fidelity of a translation from a language unknown to them; and that is the testimony of independent witnesses. A person ignorant of Greek, and therefore unable to judge whether his son correctly reads and translates a given passage, ought surely to feel satisfied when the passage is read and translated in precisely the same manner by the first six or seven persons consulted by him, if it be impossible to suspect any collusion between them, although he is as incapable of judging their powers even of reading the language as in the case of his own son. The certainty arrived at in this instance is not derived from the facts that Greek is a language supposed to be known by many educated

<sup>80</sup> See a text in Lepsius Denkm. III. 229.

<sup>81</sup> Todt., 149, 59.



men, and that the persons consulted have the reputation of being educated men, but from the no less certain fact that any person, professing to read and translate a passage of a language really unknown to him must necessarily fall into a multitude of errors, and from the extreme improbability, not to say impossibility, that six or seven different persons should independently err into exactly the same combination of errors.

In applying this test to hieroglyphics, it must be observed that the greater parts of the texts quoted in this paper have, up to the present moment, remained untranslated. Yet I have no hesitation in saying that, were these texts put before any of the scholars whose names are held in estimation among Egyptologists, such as Dr. Hincks in this country, Mr. Birch in England, M. de Rougé and M. Chabas in France, Dr. Lepsius and Dr. Brugsch in Germany, not to mention others,

1. These gentlemen would, one and all, divide the texts into exactly the same groups as mine.

2. They would (saving certain restrictions, presently to be noticed), read and translate these groups as I have done.

3. If the *translation* of any of the passages quoted from the Book of the Dead were put before the scholars I have named, they would easily point out the chapter and line from which it was taken.

4. I do not profess to be able to translate *every* passage in the Book of the Dead; but if *any* passage in it be translated by any one of the above-mentioned scholars, I will undertake to point out the original text, determine the beginning and the end of it, divide it accurately into groups, and assign to each the same meaning as that given to it by its translator.

And I humbly submit that all this would be impossible if the science of Egyptology were an illusion.

One of the first steps in the process of reading, namely, the division into groups, is by no means an easy one.<sup>82</sup> The most

<sup>82</sup> It is worth while comparing Dr. Seyffarth's division into groups with that followed by the school of Champollion. The last two groups, for instance, of *Todt*. 88, which Champollion and all who follow him would read eM SeCheM, of or in *Sechem*, are divided by Dr. S. into four groups, which he reads and translates as follows:

ꜥꜣ-ꜥꜣꜣꜣ ꜥꜣ-ꜥꜣꜣꜣ ꜥꜣꜣ ꜥꜣꜣꜣ  
*crocodilorum in hypogei ædificio urbis*

In the first plate attached to this article I have given at C the last line of the Book of the Dead. The Coptic transcription is that of Dr. Seyffarth, that in Roman letters is my own. The correct translation is as follows—

SAU-F MU eM HeBBe eNT AUR PeST-eF SchA TIAU-U eM  
*He drinks water from the depth of the River, he shines like the stars in*  
 HeR-T  
*heaven.*

perfect knowledge of the Greek alphabet will not enable a person totally ignorant of the Greek language to divide the lines in the Codex Alexandrinus or the Codex Vaticanus into the right words, nor could two such persons independently divide a page of these manuscripts so as to produce an identical result. They might, it is true, proceed upon one and the same false system, but if this enabled them to identify a certain number of imaginary grammatical forms, it would render them no assistance whatever in arranging those portions from which these forms were absent. The vocabulary suited to one page would have but little in common with that of another, and the portions of a word wrongly divided would enter into new combinations, which, in company with all the other "disjecta membra", would tend to increase the vocabulary of the language to an indefinite extent.

I have alluded to certain restrictions which somewhat modify my assertion that all Egyptologists would read and translate the hieroglyphic groups exactly as I have done. With regard to the reading, it must be borne in mind that Egyptologists are not agreed as to the best means of transcribing hieroglyphs into Roman characters. But this is not peculiar to hieroglyphs. Although the Arabic is a language tolerably well known at the present day, there are not two Orientalists who transcribe it in the same way. One reason, indeed, for this is, that Arabic is a living language spoken in very different localities. Still, the fact remains the same, and it is quite certain that *in general* the differences in transcription between Egyptologists, however important in themselves, are not greater in kind than that which exists between the respective pronunciations of two Arabic provinces, or even of two German towns. There are, it is true, cases in which scholars have assigned values to certain hieroglyphs without having succeeded in getting their views generally recognized. But this merely proves that the science is as yet incomplete, as every one allows, not that it is baseless or but little advanced. As to the translation, I have here and there intimated that I was not quite sure of having caught the sense of a word or a phrase; I gave the sense which appeared most probable; but in all the cases referred to, I should not be surprised if a different interpretation were given by higher authorities. Besides these

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Dr. Seyffarth's translation is:

*Potum dantis potioribus fluminis fulgentis gloriosi Zodiaci, qui flammam dejicit  
similes stellis Orionis celestis.*

The words of the two translations which agree do not necessarily refer to the same groups. What I translate *from the depth*, corresponds to the "*fluminis fulgentis*" of Dr. S., and the word PeST-eF, "he shines", is broken by Dr. S. into three distinct words signifying "qui flammam dejicit". Other coincidences in the translations are due to Champollion's Dictionary.

instances of possible errors, of which I am perfectly conscious, it is not improbable that I have unsuspectingly made other blunders, just as I might in translating Latin or Greek. I am certain, however, that these are comparatively few, and that, all reserves being taken into account, I may confidently appeal on behalf of the translations in question to those eminent scholars who are daily extending the boundaries of the science.<sup>83</sup>

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PLATE II.

This plate contains most of the hieroglyphic texts quoted in the foregoing article. Such as are wanting were not introduced into the article until the plate was already engraved. The following table may serve as a concordance between the plate and the article.

<i>Text.</i>	<i>Whence taken.</i>	<i>Transcribed and translated.</i>	
1.	Todtenbuch, 86, 8, . . . . .	{ ATLANTIS, Vol. III., page 130,	line 24.
2.	" 101, 6. . . . .		" 31.
3.	" 130, 27, . . . . .		" 8.
4.	" 136, 12, . . . . .		" 15.
5.	" 140, 12, . . . . .		" 1.
6.	Prisse, Monumens, Pl. 21, line 13, . . . . .	" "	" 10.
7.	" " 21, " 17, . . . . .	" "	" 12.
8.	" " 21, " 21, . . . . .	" "	" 14.
9.	De Rougé, Stèle Egyptienne, Pl. 108, . . . . .	" "	" 16.
10.	Todtenbuch, 7, 3, . . . . .	" "	" 33.
11.	" 125, 10, . . . . .	" 134,	" 11.
12.	" 22, 2, . . . . .	" "	" 14.
13.	" 149, 55, . . . . .	" "	" 21.
14.	" 149, 56, . . . . .	" "	" 24.
15.	Rosetta Inscription, line 10, . . . . .	" 136,	" 14.
16.	Todtenbuch, 17, 64, . . . . .	" "	" 28.
17.	" 17, 51, . . . . .	" "	" 37.
18.	" 17, 73, . . . . .	" 137,	" 2.
20.	" 72, 2, . . . . .	" "	" 7.
21.	" 136, 6, . . . . .	" "	" 10.
22.	" 148, 16, . . . . .	" "	" 13.
23.	" 11, 3, . . . . .	" "	" 18.
24.	" 32, 2, . . . . .	" "	" 20.
25.	" 43, 1, . . . . .	" "	" 22.
26.	" 28, tit., . . . . .	" 138,	" 8.
27.	" 30, tit., . . . . .	" "	" 11.
28.	" 128, 5, . . . . .	" "	" 19.
29.	Sharpe, Egypt. Inscr., Pl. 75, line 4, . . . . .	" "	" 23.
30.	Champollion, Monumens, Pl. 214, . . . . .	" "	" 26.
31.	Todtenbuch, 125, 63, . . . . .	" "	" 31.
32.	" 124, 10, . . . . .	" "	" 36.
33.	" 15, 9, . . . . .	" 139,	" 2.
34.	Lepsius, Denkmäler II., Pl., 121, . . . . .	" "	" 22.
35.	Todtenbuch, 125, 59, . . . . .	" 140,	" 9.
36.	" 49, 2, . . . . .	" "	" 15.

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<sup>83</sup> It was not till this article was ready for the press that I had the advantage of seeing the fifteenth volume of the *Revue Archéologique*, containing several valuable articles by M. Chabas. I have altered nothing in consequence of those articles.



37.	Todtenbuch, 42, 13, . . . . .	page 140,	line 21.
38.	De Rougé, Stèle Egyptienne, p. 51, . . . . .	" 141,	" 15.
39.	Todtenbuch, 71, 1, . . . . .	" "	" 17.
40.	Brugsch, Geogr. Inscr. Bd. 1, Taf. 34, No. 684, . . . . .	" 143,	" 1.
41.	" No. 697, . . . . .	" "	" 5.
42.	Todtenbuch, 108, 10, . . . . .	" "	" 9.
43.	" 17, 24, . . . . .	" "	" 27.
44.	Brugsch, Geogr. Inscr. Bd. 1, Taf. 9, No. 354, . . . . .	" 144,	" 22.
45.	Todtenbuch, 134, 6, . . . . .	" 145,	" 8.
46.	" 22, 2, . . . . .	" "	" 35.
47.	" 17, 35, . . . . .	" 146,	" 3.
48.	" 101, 8, . . . . .	" "	" 8.
49.	" 99, 33, . . . . .	" "	" 17.
50.	" 154, 3, . . . . .	" "	" 21.
51.	" 17, 33, . . . . .	" "	" 25.
52.	" 100, 3, . . . . .	" 147,	" 8.
53.	" 112, 6, . . . . .	" 150,	" 25.
54.	" 149, 59, . . . . .	" 151,	" 6.
55.	" 112, 7, . . . . .	" "	" 18.
56.	" 17, 11, . . . . .	" 128, note 6,	" 2.
57.	" 13, 1, . . . . .	" 130, " 10,	" 3.
58.	" 42, 22, . . . . .	" " 10,	" 11.
59. <sup>84</sup>	" 38, 2, . . . . .	" 131, " 14,	" 6.
60.	Description de l'Egypte, Antiquités, V. Pl. 40, . . . . .	" " " 14,	" 12.
61.	" <i>Ibid</i> , . . . . .	" " " 14,	" 15.
62.	Todtenbuch, 148, 4, . . . . .	" " " 15,	" 1.
63.	" 18, 39, . . . . .	" 132, " 16,	" 2.
64.	" 19, 14, . . . . .	" " " 16,	" 5.
65.	" 149, 36, . . . . .	" 134, " 20,	" 8.
66.	Sharpe Eg. Inscr. Pl. 57, 41, . . . . .	" 138, " 27,	" 2.
67.	Todtenbuch, 1, 18, . . . . .	" 139, " 34,	" 1.
68.	" 89, 7, . . . . .	" " 34,	" 3.
69.	" 154, 4, . . . . .	" 146, " 69,	" 2.
70.	" 101, 1, . . . . .	" 147, " 71,	" 24.
71.	" 100, 7, . . . . .	" " 71,	" 27.
72.	" 130, 21, . . . . .	" " 71,	" 35.
73.	" 17, 4, . . . . .	" 148, " 71,	" 5.
74.	" 17, 74, . . . . .	" " 71,	" 15.
75.	Champollion Dict. p. 222, . . . . .	" " " 71,	" 35.
76.	<i>Ib.</i> p. 31, Cf. Rosellini Mon. d. Culto Pl. 22, . . . . .	" " " 71,	" 43.

<sup>84</sup> In the first group PeTHU-A of this text, the sign of the first person singular, a seated figure (=A), has been omitted in the engraving.

[As the *Revue Archéologique* of the present year is publishing a series of valuable papers, by M. le Vicomte de Rougé, on the Ritual of the Ancient Egyptians, it is important, for obvious reasons, to state, that the preceding article was written in the course of last summer. It was already in print early in December, and, but for the unavoidable delay in the publication of this number of the *ATLANTIS*, would have appeared on the first of January.—ED.]

# MATHEMATICAL, PHYSICAL, AND NATURAL SCIENCES.

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ART. V.—*On the general solution of Cubic Equations, and the reduction of what is called the Irreducible Case of Cardan's Rule.* By W. G. PENNY, M.A.

THE solution of a cubic equation may in all cases be effected; but, inasmuch as different methods are employed for this purpose according as all the roots are positive or not, no solution which is considered a general one, that is, one which is applicable to all cases, has, I believe, been given. It would appear, however, that by a slight variation of the methods already in use, we may obtain such a solution; one, that is, which will include both cases, viz., where the roots are all possible, and where two of them are impossible. To make what follows more clear, it may be well if I give briefly the methods above spoken of. There are two of them, and the first is of Cardan.

Let the equation, when deprived of its second term, be

$$x^3 - qx - r = 0.$$

Now let  $x = a + b$ , therefore

$$a^3 + b^3 + 3ab(a + b) - q(a + b) - r = 0$$

We have as yet only supposed that  $x$  is divided into two parts,  $a$  and  $b$ , we may now make the further supposition that it is divided into two parts in such a way that

$$3ab - q \text{ shall equal } 0, \text{ or } b = \frac{q}{3a}$$

substituting this value of  $b$  in the last equation, we shall have

$$a^3 + \frac{q^3}{27a^3} - r = 0$$

which will give

$$a^3 = \frac{r}{2} \pm \sqrt[3]{\frac{r^2}{4} - \frac{q^3}{27}}$$

We shall obtain a similar value for  $b^3$ , except that when the positive sign is taken in one, the negative is taken in the other, so that we shall have

$$x = a + b = \sqrt[3]{\frac{r}{2}} + \sqrt[3]{\frac{r^2}{4} - \frac{q^3}{27}} + \sqrt[3]{\frac{r}{2}} - \sqrt[3]{\frac{r^2}{4} - \frac{q^3}{27}}$$

Now when the quantity under the sign of the square root is negative, that is, when the roots are all positive, the quantity

$\sqrt{\frac{r^2}{4} - \frac{q^3}{27}}$  becomes impossible, and Cardan's solution is said to

fail; and the following method is had recourse to.

Let the equation be as before

$$x^3 - qx - r = 0.$$

Let now  $x = m \cos \theta$

$$\therefore m^3 \cos^3 \theta - qm \cos \theta - r = 0$$

$$\text{now } \cos^3 \theta = \frac{3}{4} \cos \theta + \frac{1}{4} \cos 3\theta$$

$\therefore$  by substituting this value of  $\cos^3 \theta$

$$\frac{3}{4}m^3 \cos \theta - qm \cos \theta + \frac{1}{4}m^3 \cos 3\theta - r = 0$$

Let us now, as before, make a further supposition as to the relation between  $m$  and  $\cos \theta$ , and suppose that

$$\frac{3}{4}m^2 - q = 0 \text{ or } m = 2\sqrt{\frac{q}{3}}$$

then also we shall have

$$\frac{1}{4}m^3 \cos 3\theta - r = 0 \text{ or}$$

$$\cos 3\theta = \frac{4r}{m^3} = \frac{r}{2} \sqrt{\frac{27}{q^3}}$$



$$\therefore 3\theta = \cos^{-1} \frac{r}{2} \sqrt{\frac{27}{q^3}}$$

$$\theta = \frac{1}{3} \cos^{-1} \frac{r}{2} \sqrt{\frac{27}{q^3}}$$

$$\cos \theta = \cos \left( \frac{1}{3} \cos^{-1} \frac{r}{2} \sqrt{\frac{27}{q^3}} \right)$$

$$x = m \cos \theta = 2 \sqrt{\frac{q}{3}} \cos \left( \frac{1}{3} \cos^{-1} \frac{r}{2} \sqrt{\frac{27}{q^3}} \right) \dots\dots\dots (B)$$

This solution requires that  $\frac{r}{2} \sqrt{\frac{27}{q^3}}$  should be less than unity,

since a cosine is always less than unity, and applies, therefore, to the case in which Cardan's rule is said to fail, viz., to the case where all the roots are possible, and is called "the irreducible case of Cardan's Rule". We have, therefore, obtained two distinct solutions for the two cases which may occur.

Now, if a general solution can be found, it is manifest that it must be such that the values of  $x$  given in (A) and (B) shall

be particular cases of it, according as  $\frac{r^2}{4}$  is greater or less than  $\frac{q^3}{27}$

or, in other words, such a value of  $x$  must be obtained, as may be put into either of the forms given above, as may be most convenient. Now the one is in the form of a binomial, obtained by the substitution of a binomial for  $x$ , and the other is in the form of a cosine, obtained by the substitution of a cosine; also the sum of two exponential quantities will be of both forms, namely, of a binomial and a cosine. Let us therefore suppose

$$x = e^y + ce^{-y}, \text{ then}$$

$$e^{3y} + c^3 e^{-3y} + 3c(e^y + ce^{-y}) - q(e^y + ce^{-y}) - r = 0$$

$$\text{let now } 3c - q = 0 \text{ or } c = \frac{q}{3}$$

$$\text{then } e^{3y} + \frac{q^3}{27} e^{-3y} - r = 0, \text{ which will give}$$

$$e^{3y} = \frac{r}{2} + \sqrt{\frac{r^2}{4} + \frac{q^3}{27}}, \text{ or}$$

$$y = \frac{1}{3} \log_{\epsilon} \left( \frac{r}{2} + \sqrt{\frac{r^2}{4} - \frac{q^3}{27}} \right) \text{ and therefore}$$

$$x = e^y + ce^{-y}$$

$$= e^{\frac{1}{3} \log_{\epsilon} \left( \frac{r}{2} + \sqrt{\frac{r^2}{4} - \frac{q^3}{27}} \right)} + \frac{q}{3} e^{-\frac{1}{3} \log_{\epsilon} \left( \frac{r}{2} + \sqrt{\frac{r^2}{4} - \frac{q^3}{27}} \right)} \dots\dots\dots (C)$$

Now this is a quantity which may be put under either of the forms given above, as may be found most convenient, for we must first put it under the form

$$\begin{aligned} x &= e^{\log \sqrt{\frac{r}{2} + \sqrt{\frac{r^2}{4} - \frac{q^3}{27}}}} + \frac{q}{3e^{\log \sqrt[3]{\frac{r}{2} + \sqrt{\frac{r^2}{4} - \frac{q^3}{27}}}}} \\ &= \sqrt{\frac{r}{2} + \sqrt{\frac{r^2}{4} - \frac{q^3}{27}}} + \frac{q}{3\sqrt[3]{\frac{r}{2} + \sqrt{\frac{r^2}{4} - \frac{q^3}{27}}}} \end{aligned}$$

and if we multiply the numerator and denominator of the latter fraction

$$\text{by } \sqrt[3]{\frac{r}{2} - \sqrt{\frac{r^2}{4} - \frac{q^3}{27}}} \text{ it becomes}$$

$$\sqrt{\frac{r}{2} - \sqrt{\frac{r^2}{4} - \frac{q^3}{27}}}, \text{ so that}$$

$$x = \sqrt[3]{\frac{r}{2} + \sqrt{\frac{r^2}{4} - \frac{q^3}{27}}} + \sqrt[3]{\frac{r}{2} - \sqrt{\frac{r^2}{4} - \frac{q^3}{27}}}$$

which is the same as Cardan's solution. We may also reduce it to the form given in equation B, for equation (C) may be put under the form

$$\begin{aligned} x &= \sqrt{\frac{q}{3}} \left\{ \left( \frac{q}{3} \right)^{-\frac{1}{3}} e^{\frac{1}{3} \log_{\epsilon} \left( \frac{r}{2} + \sqrt{\frac{r^2}{4} - \frac{q^3}{27}} \right)} + \left( \frac{q}{3} \right)^{\frac{1}{3}} e^{\frac{1}{3} \log_{\epsilon} \left( \frac{r}{2} + \sqrt{\frac{r^2}{4} - \frac{q^3}{27}} \right)} \right\} \\ &= \sqrt{\frac{q}{3}} \left\{ e^{\log_{\epsilon} \left( \frac{q}{3} \right)^{-\frac{1}{3}}} e^{\frac{1}{3} \log_{\epsilon} \left( \frac{r}{2} + \sqrt{\frac{r^2}{4} - \frac{q^3}{27}} \right)} + e^{\log_{\epsilon} \left( \frac{q}{3} \right)^{\frac{1}{3}}} e^{\frac{1}{3} \log_{\epsilon} \left( \frac{r}{2} + \sqrt{\frac{r^2}{4} - \frac{q^3}{27}} \right)} \right\} \end{aligned}$$

$$-\sqrt{\frac{q}{3}} \left\{ e^{\frac{1}{3} \log_{\epsilon} \left( \frac{r}{2} \sqrt{\frac{27}{q^3}} + \sqrt{\frac{r^2 27}{4 q^3} - 1} \right)} + e^{-\frac{1}{3} \log_{\epsilon} \left( \frac{r}{2} \sqrt{\frac{27}{q^3}} + \sqrt{\frac{r^2 27}{4 q^3} - 1} \right)} \right\}$$

Let now  $\log_{\epsilon} \left( \frac{r}{2} \sqrt{\frac{27}{q^3}} + \sqrt{\frac{r^2 27}{4 q^3} - 1} \right) = u \sqrt{-1}$

$$\therefore \frac{r}{2} \sqrt{\frac{27}{q^3}} + \sqrt{\frac{r^2 27}{4 q^3} - 1} = e^{u \sqrt{-1}}$$

also  $\frac{1}{\frac{r}{2} \sqrt{\frac{27}{q^3}} + \sqrt{\frac{r^2 27}{4 q^3} - 1}} = e^{-u \sqrt{-1}}$

multiply numerator and denominator of this latter fraction by

$$\frac{r}{2} \sqrt{\frac{27}{q^3}} - \sqrt{\frac{r^2 27}{4 q^3} - 1}$$

and it becomes

$$\frac{r}{2} \sqrt{\frac{27}{q^3}} - \sqrt{\frac{r^2 27}{4 q^3} - 1} = e^{-u \sqrt{-1}}$$

$\therefore$  by adding and dividing by 2

$$\frac{r}{2} \sqrt{\frac{27}{q^3}} = \frac{1}{2} (e^{u \sqrt{-1}} + e^{-u \sqrt{-1}})$$

$$= \cos u, \text{ by trigonometry}$$

$$\therefore u = \cos^{-1} \frac{r}{2} \sqrt{\frac{27}{q^3}}$$

$$u \sqrt{-1} = \sqrt{-1} \cos^{-1} \frac{r}{2} \sqrt{\frac{27}{q^3}}$$

also equations (a) becomes

$$x = \sqrt{\frac{q}{3}} \left\{ e^{\frac{1}{3} u \sqrt{-1}} + e^{-\frac{1}{3} u \sqrt{-1}} \right\}$$

$$= \sqrt{\frac{q}{3}} \left\{ e^{\sqrt{-1} \frac{1}{3} \cos^{-1} \frac{r}{2} \sqrt{\frac{27}{q^3}}} + e^{-\sqrt{-1} \frac{1}{3} \cos^{-1} \frac{r}{2} \sqrt{\frac{27}{q^3}}} \right\}$$



$$2\sqrt{\frac{q}{3}} \cos \left( \frac{1}{3} \cos^{-1} \frac{r}{2} \sqrt{\frac{27}{q^3}} \right)$$

which is also the value of  $x$  obtained by the second process.

The solution (C), therefore, above given, will include both cases, and may be put under either form, as may be most convenient. Also it is evident that Cardan's solution may be reduced to the form (B), for by the inverse process to what has been given, it may easily be reduced to the form (C), and thence, as has been done above, to the form (B).

Also, since the expressions (A) and (B) are each equal to the expression (C), they are equal to each other; so that in the case

when  $\frac{r^2}{4}$  is less than  $\frac{q^3}{27}$

$$\begin{aligned} & \sqrt[3]{\frac{r}{2} + \sqrt{\frac{r^2}{4} - \frac{q^3}{27}}} - \sqrt[3]{\frac{r}{2} - \sqrt{\frac{r^2}{4} - \frac{q^3}{27}}} \\ &= 2\sqrt{\frac{q}{3}} \cos \left( \frac{1}{3} \cos^{-1} \frac{r}{2} \sqrt{\frac{27}{q^3}} \right) \end{aligned}$$

These latter, therefore, are nothing more than equivalent forms of the same expression.

The equation just given may also be proved as follows:

$$\begin{aligned} & \sqrt[3]{\frac{r}{2} + \sqrt{\frac{r^2}{4} - \frac{q^3}{27}}} + \sqrt[3]{\frac{r}{2} - \sqrt{\frac{r^2}{4} - \frac{q^3}{27}}} \\ &= \sqrt{\frac{q}{3}} \left\{ \sqrt[3]{\frac{r}{2} \sqrt{\frac{27}{q^3}} + \sqrt{\frac{r^2}{4} \frac{27}{q^3} - 1}} + \sqrt[3]{\frac{r}{2} \sqrt{\frac{27}{q^3}} - \sqrt{\frac{r^2}{4} \frac{27}{q^3} - 1}} \right\} \\ & \text{let } \frac{r}{2} \sqrt{\frac{27}{q^3}} = \cos \theta \text{ or } \theta = \cos^{-1} \frac{r}{2} \sqrt{\frac{27}{q^3}} \end{aligned}$$

then the expression becomes

$$\begin{aligned} & \left( \frac{r}{2} + \sqrt{\frac{r^2}{4} - \frac{q^3}{27}} \right)^{\frac{1}{3}} + \left( \frac{r}{2} - \sqrt{\frac{r^2}{4} - \frac{q^3}{27}} \right)^{\frac{1}{3}} \\ &= \sqrt{\frac{q}{3}} \left( \cos \theta + \sqrt{-1} \sin \theta \right)^{\frac{1}{3}} + \sqrt{\frac{q}{3}} \left( \cos \theta - \sqrt{-1} \sin \theta \right)^{\frac{1}{3}} \end{aligned}$$

$$= \sqrt{\frac{q}{3}} \left( \cos \frac{1}{3}\theta + \sqrt{-1} \sin \frac{1}{3}\theta \right) + \sqrt{\frac{q}{3}} \left( \cos \theta - \sqrt{-1} \sin \frac{1}{3}\theta \right)$$

(by *Demoivre's theorem*)

$$= 2 \sqrt{\frac{q}{3}} \cos \frac{1}{3} \theta = 2 \sqrt{\frac{q}{3}} \cos \left( \frac{1}{3} \cos^{-1} \frac{r}{2} \sqrt{\frac{q^3}{27}} \right).$$

COR. By exactly the same process we may prove the more general equation

$$(x + \sqrt{x^2 - a^2})^n + (x - \sqrt{x^2 - a^2})^n = 2a^n \cos \left( n \cos^{-1} \frac{x}{a} \right).$$

This, of course, supposes  $x$  to be less than  $a$ , otherwise the assumption  $\frac{x}{a} = \theta$  could not be a legitimate one.

It would appear, therefore, that the solution given by Cardan is always *true*; and therefore if it can be said to fail, it is not because it is untrue, but merely because it is an *inconvenient* form in which to put the value of  $x$ , and one which without reduction would give us but little idea of the actual numerical value. This reduction, moreover, may always be easily effected by the process just given.

It might, indeed, at first sight, seem as if Cardan's expression would give an impossible value for  $x$ , when the quantity under the radical sign is impossible, but it does not do so in reality, for though each of the parts of the binomial, taken separately, is an impossible quantity, yet their sum is not; for, on expanding each of them by the binomial theorem, and then taking their sum, it is easily seen that the impossible quantities will disappear; just as in Trigonometry, where an expression for  $\cos \theta$  is

$$\cos \theta = \frac{1}{2} (\sqrt{-1}^\theta + e^{-\sqrt{-1}\theta})$$

which is not an impossible quantity, although the two parts of it are each of them separately impossible, for on expanding  $e^{\sqrt{-1}\theta}$  etc., and taking the sum, the impossible parts cancel each other. And this suggests another method, in addition to that given above, of reducing the expression given by Cardan, reducing it, that is, to decimals, which is what is generally required in practice. I am still supposing the case where all the roots are possible.

Let us then for shortness put  $\frac{r}{2}=a$ , and  $\sqrt{\frac{r^2}{2}-\frac{q^3}{27}}=v$ .

then the expression will become

$$\begin{aligned} & \sqrt[3]{a+v} + \sqrt[3]{a-v} \\ &= a^{\frac{1}{3}} \left(1 + \frac{v}{a}\right)^{\frac{1}{3}} + a^{\frac{1}{3}} \left(1 - \frac{v}{a}\right)^{\frac{1}{3}} \\ &= a^{\frac{1}{3}} \left(1 + \frac{1v}{3a} - \frac{1v^2}{9a^2} + \frac{5v^3}{81a^3} - \frac{10v^4}{243a^4} + \right) \\ &+ a^{\frac{1}{3}} \left(1 - \frac{1v}{3a} - \frac{1v^2}{9a^2} - \frac{5v^3}{81a^3} - \frac{10v^4}{243a^4} - \right) \\ &- 2a^{\frac{1}{3}} \left(1 - \frac{1v^2}{9a^2} - \frac{10v^4}{243a^4} + \right) \end{aligned}$$

The odd powers of  $\frac{a}{v}$  therefore, that is the impossible quantities, disappear; and if  $v$  is a proper fraction, we shall have a converging series, of which a very few terms will give us the value of the root in decimals to great exactness.

Suppose, for example, that we have the equation

$$x^3 - 4x - 3 = 0$$

here we shall have  $r=3$ ,  $q=4$

$$\frac{r^2}{4} = -\frac{13}{180}, \text{ also in the series just given,}$$

$$a = \frac{r}{2} = \frac{3}{2}, \quad \frac{v^2}{a^2} = \frac{4}{r^2} \left( \frac{r^2}{4} - \frac{q^3}{27} \right) = -\frac{13}{243}$$

hence the series becomes

$$2\sqrt[3]{\frac{3}{2}} \left( 1 + \frac{1}{9} \frac{13}{243} - \frac{10}{243} \left( \frac{13}{243} \right)^2 + \right)$$

which, when resumed, will give for the value of  $x$ , 2.3027.

This being found, the equation may be depressed to

$$x^2 + 2.3027x + 1.3027 = 0$$



whose roots are  $-1$  and  $-1.3027$ , hence the required roots are  $2.3027$ ,  $-1.3027$ , and  $-1$ . Here, then, is an example of a cubic equation having all its roots possible, and found by Carden's rule. In the above case, however the quantity  $\frac{v^2}{a^2}$  is a small fraction. It might, however, have happened that it was a large quantity, in which case the above expansion would not have been available, inasmuch as the series formed would not have been convergent. When this is the case, therefore, we shall have to vary the method of expansion, as follows:—

$$\begin{aligned}
 x &= \sqrt[3]{a+v} + \sqrt[3]{a-v} \\
 &= v^{\frac{1}{3}} \left(1 + \frac{a}{v}\right)^{\frac{1}{3}} - v^{\frac{1}{3}} \left(1 - \frac{a}{v}\right)^{\frac{1}{3}} \\
 &= v^{\frac{1}{3}} \left(1 + \frac{1a}{3v} - \frac{1a^2}{9v^2} + \frac{5a^3}{81v^3} - \frac{10a^4}{243v^4} + \frac{22a^5}{729v^5} \text{ etc.} \right) \\
 &\quad - v^{\frac{1}{3}} \left(1 - \frac{1a}{3v} - \frac{1a^2}{9v^2} - \frac{5a^3}{81v^3} - \frac{10a^4}{243v^4} - \frac{22a^5}{729v^5} - \text{etc.} \right) \\
 &= 2v^{\frac{1}{3}} \left( \frac{1a}{3v} + \frac{5a^3}{81v^3} + \frac{22a^5}{729v^5} \text{ etc.} \right) \\
 &= 2 \left( \frac{1a}{3v^{\frac{2}{3}}} + \frac{5a^3}{81v^{\frac{8}{3}}} + \frac{22a^5}{729v^{\frac{14}{3}}} + \text{etc.} \right) \\
 &= 2a^{\frac{1}{3}} \left( \frac{1}{3} \sqrt[3]{\frac{a}{v}} + \frac{5}{18} \sqrt[3]{\frac{a}{v}}^3 + \frac{22}{729} \sqrt[3]{\frac{a}{v}}^{14} + \text{etc.} \right)
 \end{aligned}$$

let  $\sqrt[3]{\frac{a}{v}} = k$ , then the above will be reduced to

$$\frac{2}{3}ka^{\frac{1}{3}} \left( 1 + \frac{5}{27}k^3 + \frac{22}{243}k^6 + \text{etc.} \right)$$

all of which quantities are manifestly possible; and when  $\frac{a^2}{v^2}$  is a proper fraction, as it is here supposed, the series will be always a convergent one. As an example, take the equation

$$x^3 - 5x + 1 = 0$$

The root of it, which is found by the summations of the above series, is .2016, and the others may be found from the reduced quadratic, they are

$$2.1284 \text{ and } -2.3300.$$

In both the above examples, it will be seen that  $\frac{a^2}{v^2}$  or  $\frac{v^2}{a^2}$  is a small fraction, and so two terms at most of the series will amply suffice. It might, however, have happened that  $\frac{a^2}{v^2}$  was nearly equal to unity. The method, however, would still be applicable, only we should have to take a greater number of terms. But in practice this may be avoided; and it will always suffice even in the most unfavourable cases to take two terms at most, and then apply a correction, as will presently be explained. For even if we were to omit all the terms in the latter series after the unit, the error in the value of the root would never exceed a fifth or sixth of its entire value, and the error would be much further lessened if we were to take one or two of the terms which follow the unit. Suppose, then, that by doing so, we find a value  $c$  for a root of the equation, but which, on substituting it for  $x$ , does not satisfy the equation so nearly as we could wish. Suppose also, that  $c + h$  is the true value of the root; then we should have

$$(c+h)^3 - q(c+h) - r = 0$$

$$\text{or } c^3 + 3c^2h + 3ch^2 + h^3 - qc - qh - r = 0$$

As  $h$  is supposed to be small, we may neglect its square; and this will give us for its value

$$h = \frac{c^3 - qc - r}{q - 3c^2} \text{ very nearly.}$$

and so we might proceed to a still nearer reduction. Take as an example

$$x^3 - 5x + 3 = 0$$

$$\text{here } \frac{a^2}{v^2} = -\frac{243}{257}, \text{ which is very near unity,}$$

but by taking two terms of the second series, and applying the correction, one of the roots will be found to be .6566. The others are both possible, and may be found in the usual way.

It appears, then, that the formula of Cardan is equally capable of reduction whether the roots be all possible or not, and with precisely the same degree of exactness; the only difference being that when they are all possible, the operation is somewhat more troublesome than when two of them are impossible. Moreover, the formula is capable of being reduced *algebraically*, and without the use of tables of cosines.

Nor is there much difference between the two methods as regards simplicity; perhaps the algebraical method will have the advantage when it is only required to calculate the root to four or five places of figures; but beyond this we might, perhaps, have to refer to the tables oftener than we should in reducing the trigonometrical formula, but not otherwise; and at all events, it will have the advantage of treating in a purely algebraical manner, and without the introduction of other branches of mathematics, what is a purely algebraical problem.

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ART. VI.—*On the Vertical Currents of the Atmosphere.* By  
HENRY HENNESSY, F.R.S.

§. 1.

IT has been long recognized that, although currents of wind in a direction nearly parallel to the horizon are those which usually prevail, the atmosphere is frequently subjected to vertical and oblique motions among its particles.

Under favourable conditions these motions may acquire such a development as to force themselves upon the attention of observers, and thus become objects for meteorological inquiry. The interesting researches of M. Fournet upon the vertical currents of mountains, appear to have arisen from the opportunities enjoyed by that physicist of studying such phenomena among the Alps. Among the deep ravines and valleys, as well as along the elevated slopes and escarpments of the Alps, a regular periodicity in the action of vertical winds has been frequently observed during the course of twenty-four hours, which has led to the conclusion that their development depends upon changes of temperature resulting from the presence and absence of the sun. As it is now well established that the distribution and changes of temperature in these islands are dependent upon other influential causes besides the direct action of the sun,<sup>1</sup> we cannot, in general, expect to find

<sup>1</sup> See ATLANTIS, vol. I. p. 396, also a letter from the author to Major-General Sabine, on the influence of the Gulf-stream on the winters of the British Islands. Proceedings of the Royal Society, vol. IX. p. 324.



in our climate, a similar diurnal periodicity so distinctly defined as that observed in the centre and south of Europe. Here, as well as on the continent, mountains are favourable to the production of inequalities of temperature, moisture, and density among the aërial strata, which thus become liable to a multitude of disturbances, and especially to the action of vertical currents. It seems to follow that in mountainous countries vertical currents have well marked relations with the changes of the weather.

If, as usually happens, lakes exist among the mountains, the mysterious occurrence called the "bore" is also thus explained. The circumstance that the suddenly-formed wave thus designated always proceeds from a side of the lake bordered by steep mountains, immediately suggests such an explanation. Although a similar idea has occurred to other inquirers, I may be permitted to refer to an instance where a demonstration was presented by me<sup>2</sup> of the efficiency of vertical currents in producing the "bore" on the surface of one of our Irish lakes. The fact that such a sudden wave usually preceded a change of the weather in the district surrounding the lake, led me to think that the study of the effective cause of the bore itself might become of importance in meteorology. But to do this, we should possess means for observing the actual direction, and, if possible, the force of the atmospheric currents.

## §. 2.

Hitherto, all instruments which had been employed for observing the wind were devised exclusively with reference to its horizontal direction and intensity, from the simple wind-vane to the most finished anemometer.<sup>3</sup> I have attempted to modify the ordinary vane so as to make it an indicator of the actual direction of the current, both in altitude and azimuth. Instead of the fixed surface against which the wind impinges in ordinary vanes, I had a disk suspended at the tail of the vane, capable of rotating on an axis perpendicular to the line of direction of the instrument. A pair of flanges were attached to this disk in such a manner that, when the whole was at rest and the air free from motion, the flanges would be horizontal. With perfectly horizontal currents, the flanges would still continue in the same position, although the head of the vane would as usual move about

<sup>2</sup> In a letter to the Rev. T. R. Robinson, D.D., of Armagh. See Proceedings of the Royal Irish Academy, vol. vi. p. 279.

<sup>3</sup> Some time after the anemoscope had been devised, my attention was called by my friend, the Rev. Dr. Robinson, to a passage among the notes to Dr. Darwin's poem of the "Botanic Garden", wherein the writer indicates such an instrument; but he seems never to have realized this idea, and the apparatus which he proposed was essentially different from mine.

in azimuth. But if a current happened to be inclined to the horizon, the flanges would be pressed upwards or downwards, showing the direction and amount of the inclination, precisely as the position of the head or tail of the ordinary vane shows the direction and inclination of a current with reference to the meridian. When we know the inclination of a given current to the horizon, we can readily estimate its absolute force from its horizontal force, as can be easily shown.

### §. 3.

Let the origin of co-ordinates be at the centre of the axis of the vertical disk;  $y \, dx$  will represent an element of the area of the flange. Let  $\theta$  represent the angle of inclination of the flange,  $H$  the pressure exercised by the wind in a horizontal direction upon a square unit of surface, and  $V$  the vertical pressure exercised upon a similar unit. The entire moment of the horizontal forces acting on the entire flange will be

$$H \int \sin \theta xy \, dx,$$

and the moment of the vertical forces will be

$$V \int \cos \theta xy \, dx.$$

Both of these moments tend to cause a rotation of the disk, but in contrary directions: hence when the disk is in equilibrium they must be equal, and therefore, because  $\theta$  is independent of  $x$  and  $y$ , we shall have

$$H \sin \theta = V \cos \theta, \quad V = H \tan \theta \quad (1)$$

and if we write  $F$  for the absolute force of the wind, we shall have

$$F = H \sec \theta \quad (2).$$

Hence it follows, that if we can observe the absolute direction of the wind, we can estimate its vertical force as well as its absolute intensity without any special instrument, using the results obtained by the existing anemometers which give the horizontal intensity.

### §. 4.

A wind-vane or *anemoscope*, capable of showing the absolute direction of an atmospherical current, having been constructed in accordance with my directions, I proceeded to make some observations during the months of June, July, and August, 1857. It was placed on the top of a strong mast, about twenty-six feet in height. The mast was fixed near the end of a large garden, far from buildings. As my first series of observations were intended to be merely provisional, I did not make them at

specific fixed hours, but at such times as presented disturbances in the atmosphere, or which afforded sufficient leisure for continued attention. A journal was kept, from which I make the following extracts. Before doing so, it is proper to remark that by the term "vertical currents" in these extracts, as well as in the title of this paper, I do not mean currents actually perpendicular to the horizon, but rather oblique currents with an upward or downward tendency.

June 28, 7h. A.M.—Air perfectly still, flanges horizontal, head of vane towards the east. 7h. 30m. A.M.—Breeze with slight vertical currents until after 8. The currents were upward from the ground. The flanges were often perfectly horizontal, and their mean angle of inclination was small. About 10 A.M., a few fine scattered clouds (cirro-cumuli) were observed to move in a direction contrary to the wind as observed near the earth.

From 3h. P.M. to 3h. 45m.—Wind extremely gentle from E.S.E., upward current, angle of inclination estimated at about  $5^{\circ}$ . The upward currents often continued for several minutes together. The angle was sometimes almost imperceptible. The sky became gradually overcast towards evening.

June 30, 10 A.M.—Sky completely overcast, strong wind from E.S.E., rapid oscillations of the disk during the greater part of the day. About 6 P.M., the wind blew in violent gusts from the east, and the disk showed alternations of upward and downward currents with occasional short intervals. These observations led me to conclude that rapid currents of air cannot generally advance with the same steadiness as currents of water, the greater mobility and elasticity of the former fluid probably allow its movements to easily acquire a species of undulation. Thus we may account for the motions of the branches of trees, which generally swing backwards and forwards, showing rapid variations in the intensity of the wind. During breezes composed of a succession of strong sudden gusts, it was difficult to estimate the inclination of the flanges, as each fresh impulse drove the flange beyond the angle due to the pressure, and before it had been sufficiently long oscillating about its true position to allow a correct observation, a fresh gust would perhaps drive it in a different direction.

July 1, 9 A.M.—Wind N.E., strong breeze with vertical currents. The position of the flanges was sometimes steady for many minutes, with a very small inclination, upward currents appeared to predominate in duration.

July 2, before 9 A.M.—Air still and warm, head of vane directed to S.E. After 9 a gentle breeze from E. and E.S.E., with an upward tendency. The disk remained steady at a small



angle, sometimes for two minutes together. Towards noon the disk was more steadily upward, while the breeze still continued. The clouds were observed to move from W.N.W. At 6h. 30m. P.M., a gentle breeze from W.S.W., sky covered with light clouds, steady upward tendency of the current, very little waving of trees. The flanges sometimes retained the same inclination for a quarter of an hour. 8h. 30m. P.M., wind more brisk from the west, but the disk still steady; sky beginning to become overcast.

July 3, 8 A.M.—Wind S.W. and S.; air filled with heavy clouds, floating at comparatively short distances from the earth. Strong breeze with alternate up and down currents, the downward currents lasting but for very short periods. 9h. 15m., A.M., wind S.S.E. with light rain. Just *before* the rain the downward currents became more prominent, the clouds moved from S.W., 10h. 30 A.M., wind S.S.W. with alternate upward and downward currents.

July 5.—Fine morning, clear sky, with a few scattered cumuli; gentle breeze from S.W., alternating currents, upward predominant. 2 P.M.—Cloudy sky, with the air almost still; slight vertical currents. Rain from four to seven o'clock. 9 P.M.—Wind N.N.W., clearing the sky; temperature rapidly falling, with downward currents. Towards midnight, the sky was almost perfectly clear, and the wind more westerly.

July 6, 9 A.M.—Very strong breeze from N.W., with vertical currents and rain. The alternations were sometimes rapid, and the apparent angle of inclination very great. The disk rarely continued steady in an inclined position, although it sometimes remained for long intervals in a perfectly horizontal position, with a strong wind. Rain appeared to produce no remarkable effect on the flanges, for it seemed to be shaken or blown off. About 3 P.M., the wind was strong and steady from N.N.W., the movements of the flange were as follows during the course of a few minutes:—Downward,  $1\frac{1}{2}$  min.; upward,  $\frac{1}{2}$  min.; level,  $\frac{1}{4}$  min.; oscillating,  $\frac{3}{4}$  min.; down,  $\frac{1}{4}$  min.; up,  $\frac{1}{2}$  min., oscillating,  $\frac{1}{2}$  min.; level,  $\frac{1}{2}$  min.; up,  $\frac{1}{4}$  min.; oscillating,  $\frac{1}{4}$  min.; level,  $\frac{1}{4}$  min.; up, 1 min.; down,  $\frac{1}{4}$  min. The air was gradually filling with broken masses of cumulo-stratus clouds. As they appeared to approach the earth, downward oscillations of the flange became more manifest. Approaching four o'clock the wind blew irregularly, with violent and sudden gusts of short duration. At  $6\frac{1}{2}$  P.M., a strong breeze, with currents having a downward tendency; towards seven the sky became a little more clear, and the currents appeared to be alternately upward and downward, with short intervals of 10 or 12 seconds. At 7h. 15m. P.M., the wind was from N.W., with alternate currents, the upward predomi-

nating, while the sky was becoming perceptibly more clear. The upward currents were decidedly longer in duration than at 6 P.M.

9½ P.M.—Wind still from N.W.; upward currents, with alternating currents at intervals of about one minute.

July 11.—Wind W. A beautiful day, with a few light clouds scattered on the sky. During the afternoon, up to 5 P.M., a strong breeze, with very decided upward currents. At short intervals, the disk oscillated, showing a downward tendency.

July 14.—Before 9 A.M., the wind was E.S.E.; a moderate breeze, with downward tendency. Light clouds were observed to move in a direction opposed to the wind at the earth's surface. 10h. 30m. A.M., wind S.E.; an increase of clouds (cumuli); both vane and disk were oscillating; downward tendency of currents was marked. At 1 o'clock in the afternoon, a fog was seen out at sea, which, as it approached the shore, ascended in clouds over Howth.

August 6, 10 A.M.—Wind N.E.; alternate currents downward predominating. The sky was covered with light clouds, and the temperature comparatively low.

August 20.—An extremely fine and warm day, with a clear sky. The air was nearly still, and the disk continued to indicate faint and steady upward currents, for the flange continued at an upward inclination of a few degrees for long intervals, sometimes exceeding one hour. The movements of smoke that could be observed at the same time showed a similar tendency.

August 21, 7 A.M.—Wind E.S.E., with no vertical currents; after 8, the disk commenced to move, and the flange was sometimes inclined upwards at a very small angle. It frequently remained perfectly level, although a very perceptible breeze was blowing. After 10 A.M., the upward tendency became more manifest, and it generally remained for long intervals inclined at an angle of from about 5° to 8°.

August 24, 5 P.M.—*Before* and during a heavy shower the disk exhibited the presence of downward currents.

September 3, 8 A.M.—Wind blowing in sudden gusts from N.E., the disk showed vertical currents, chiefly with a downward tendency; rain followed at about half-past nine.

## §. 5.

The few results which were thus recorded seem to show that the study of the non-horizontal motions of our atmosphere is desirable, not only among mountainous districts, but that it may form a portion of our general inquiries under all local circumstances whatever. It appears that the wind rarely blows parallel to the surface of the earth, and that the air, while in rapid motion,

is always undergoing a process of undulation, whereby the direction of the axis of a current at any point above the earth is changed alternately, so as to be more or less inclined upwards or downwards just as the direction of the wind in azimuth is frequently observed to slightly oscillate about its mean position. We may conclude, therefore, from §. 3, that the absolute force of the wind is always a little greater than its horizontal intensity, as exhibited by the anemometers.

While such an undulatory motion of the atmospherical currents may be generally due to the elasticity of the air and the mechanical influence of terrestrial irregularities, many of my observations were such as to clearly show the existence of true upward and downward currents. In no other way can we account for the steady inclination of the flanges of the anemoscope at times when scarcely any horizontal wind was perceptible. When true upward currents were prevalent, the temperature of the air was usually increasing and the weather fine. Downward currents seemed to be usually preceded or accompanied by a sudden decrease of temperature, and these currents themselves usually preceded rain or unfavourable weather. Regular alternations of both classes of currents were usual about noon or the forenoon of clear days. The explanation of the last circumstance is extremely simple. It depends upon the manner in which the atmosphere acquires the greatest part of its heat during the day. A small portion of the solar heat is immediately absorbed in passing through the air, but the greater part reaches the ground, whence it is imparted to the atmosphere immediately touching it. The air so heated expands, and consequently, from its reduced density, it tends to penetrate upwards in currents through the overlying strata, which at the same time fall downwards to fill up the vacancies. A species of convection, analogous to that seen in a boiling or heated mass of liquid, is thus developed in the air. The trembling of the air, often noticed over steam-boilers, close to the chimneys of steam-vessels, and even on walls and gravelled walks heated by the mid-day sun, is undoubtedly due to the same minute and rapid currents which take part in this process of aerial convection.

#### §. 6.

That there are more important vertical currents engaged in promoting exchanges between the upper and lower strata of the atmosphere, within a short distance from the earth, appears manifest from experiments made by me in May, 1858.<sup>4</sup> Thermo-

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<sup>4</sup> Report of the British Association for 1858. Transactions of Sections, p. 36.



meters were suspended at different heights, and under different circumstances of exposure to the supposed currents. On days when the sky was clear, and when, consequently, the direct influence of the sun in heating the ground was most decided, observations were made every minute, and sometimes every half minute, during short intervals. More or less rapid oscillations of the mercury were observed. In thermometers freely exposed to the air, the mercury sometimes rose or fell three degrees Fahrenheit in three minutes. The longest fluctuations did not occupy more than six minutes. The fluctuations diminished, the more the thermometers were protected from the influence of the currents of air.

A further confirmation of these results is found in the Report of the Director of the Radcliffe Observatory at Oxford, relative to the meteorological observations during the year 1857.

The thermometrical curves exhibited a remarkable serration during the day-time of the most brilliant months of the year. This serration entirely ceased during the winter, and on gloomy days at every season: its intensity seemed to increase with sunshine. It is readily explained by the action of small atmospheric currents alternately ascending and descending, the former producing a sudden and brief elevation of the mercury, and the latter a sudden and short depression. The curves referred to were obtained at the Radcliffe Observatory, by a very beautiful application of the waxed-paper photographic process; and the results here noticed would probably never have been exhibited by the ordinary observations at stated hours. I cannot refrain from remarking that the success which has attended this portion of the application of photographic registration to meteorology, has much increased my confidence in its trustworthiness, while it has inspired a feeling of deep regret at the loss which science has sustained by the death of Mr. Johnson, to whose able management and indefatigable labours these and many other results are mainly due.

### §. 7.

To such small currents we may attribute whirlwinds of more or less magnitude, from those which we often observe on dusty roads, to the grand and frequently dangerous phenomena of the desert. Mr. Belt, who writes in the *Philosophical Magazine* for January, 1859, presents some very instructive observations on this subject. The ascending currents over dry ground in the interior of Australia, were frequently observed by him to carry leaves and dust to the upper regions of the atmosphere. Often, when travelling over parched plains, this observer saw the air

quivering over the hot ground as if close to the wall of a furnace; suddenly a miniature storm arises, and after a few minutes violence, it as suddenly ceases, while the quivering of the air is no longer seen and the atmosphere does not feel oppressive. All these phenomena are obviously the results of more or less energetic interchanges between masses of air possessing different temperatures. The process of convection in this case is not of a gentle and gradual nature, but takes place with fitful violence. The phenomena here referred to, seem to present on a small scale the principal features of cyclonic storms and hurricanes. These are always preceded by inequalities of temperature in the regions where they occur, and it is extremely probable that such inequalities take place in a vertical as well as in a horizontal direction. The distribution of watery vapour must at the same time be affected, and this would again react upon the equilibrium of the atmosphere, so as to favour the existence of ascending and descending currents. The rapid oscillations of the barometric column which usually precede hurricanes, are thus doubtlessly connected, not only with variations in the statical pressure, but also with the irregular influence of vertical and oblique currents, which at such times disturb the equilibrium of the atmospherical column over the barometer.

#### §. 8.

The duration and energy of many of the vertical currents which came under my observation, were such as to show that currents of a greater order than those which take place by the influence of the heated ground immediately beneath, are sometimes developed among the overlying atmospheric masses. Such currents being of much greater magnitude than those which would account for the rapid fluctuations of the thermometer already noticed, we may refer to them not only great interchanges of temperature in different strata of the atmosphere, but also a very efficient part in the production of ordinary winds. If an extensive portion of the earth's surface becomes more heated than other surrounding portions, the air will ascend and overflow above the cooler air resting upon the unheated surfaces. The cold air at bottom will at the same time tend to rush inwards, so as to fill up the vacuum which the ascending currents would have left above the surface of the heated ground. As the air that overflows above does not rush into a vacuum, but penetrates and mingles with masses of cooler air possessing nearly the same density, its progress is considerably retarded, while at the same time some of the vapour which it may contain is condensed so as to assume a vesicular cloudy form. A corresponding retar-

dation in the motions of the air rushing in from the colder to the warmer surface below is also produced from the resistance of the air lying over the latter. The production of sea and land breezes furnishes a complete and instructive illustration of these remarks. Many of the upward currents, which I observed with the anemoscope during the summer mornings, were undoubtedly the precursors of the sea breeze. Such currents continue to accompany the production of the land and sea winds in a manner that I have been able sometimes to observe by the smoke of steam vessels near the coast. Thus, on a warm day in June, 1857, I observed the simultaneous existence of the sea breeze at Kingstown and a slight motion of a few light clouds from the interior towards the coast. A steam-ship far out at sea was proceeding towards England, and the smoke was drawn by the gentle breeze into a streamer extending for miles behind the boat. The streamer of smoke appeared straight and perfectly horizontal over the surface of the water, until it arrived at a point about a quarter of a mile from the Hill of Howth, when it rose upwards with a gracefully-curved outline, and it appeared to be gradually diffused in the air situated vertically over the hill.

The influence of vertical and oblique currents in the atmosphere is not only thus manifest in the comparatively limited and local phenomena of sea and land breezes, mountain winds and whirlwinds, but it has been also appealed to in order to explain the circulation of the great winds of the Earth. Thus Maury, in his attempt to exhibit the general laws of the great winds, presents a diagram in which ascending and descending currents are distinctly indicated over different regions of the globe. Their agency is also appealed to by other inquirers, and their principal seats of action seem to be indicated as the calm regions, that is to say, the regions where horizontal winds blow with least intensity. Observations with the aid of the anemoscope in the regions of equatorial and tropical calms, would thus probably serve to test the accuracy of the general views here alluded to. The systematic study of the non-horizontal movements of the atmosphere has scarcely been commenced, but what little knowledge we possess of such movements shows that they are so closely connected with some of the most important phenomena of the weather, that their further investigation is certain to be attended with interesting and valuable results.



ART. VII—*Note on some Prismatic Forms of Calcite from Laganure, county of Wicklow.* By WILLIAM K. SULLIVAN.

IN the first edition of his *Traité de Minéralogie* (Paris, 1801) Haiiy distinguished three kinds of prismatic carbonate of lime: 1. *Chaux carbonatée prismée*, already described by Romé de Lisle, and which Haiiy supposes to be derived, in his molecular theory of decrements by the law  $d^1$ . According to this, it would be the prism produced by modifying planes placed upon the lateral edges of the primitive rhombohedron. The second he calls *chaux carbonatée imitative*, and considers to be the prism obtained according to the law  $e^2$  by planes on the lateral angles of the primitive. The third, which had also been before described by De Lisle, he named *chaux carbonatée prismatique*, and considered to be also derived according to the law  $e^2$ . He mentions four varieties of this form: *a*, alternating—having three alternate wide faces and three intermediate narrow ones; *b*, compressed—with two opposite faces larger than the other four; *c*, widened—with four faces wider than the remaining two; and *d*, lamelliform—in very short (*i.e.* in tabular) prisms. Of the crystals of this form he says: "In certain crystals the extremities are of a dull white, while the intermediate part is transparent. In others the opaque part is situated towards the axis and surrounded by a transparent envelope. The bases of a few exhibited concentric hexagons, and one could even observe the extremity of a small internal prism, rising above the whole prism".

The forms he calls imitative and prismatic being obtained by the law  $e^2$ , contain the same prism; the prismatic faces which have been observed among the varieties of calcite belong, therefore, to one or other of those prisms. Dufrenoy, who uses the nomenclature of Haiiy, as modified by Levy and himself, represents the faces of the first prism, or that on the edges of the rhombohedron, by the symbol  $d^1$  (*u* of Haiiy), and the prismatic, or that on the angles, by  $e^2$  (*c* of Haiiy). Of course each of these prisms is completed by the modification  $a^1$  on the summit angle, which produces the horizontal plane forming the base.

According to the German crystallographic methods, prisms are looked upon as mere limiting forms. Mohs and Haidinger consider  $d'$  to be the limiting form of the pyramids, the former expressing it by the symbol  $P + \infty$  and the latter by  $\infty P$ , which is the one adopted by Zippe in his summary of all the observed

forms of carbonate of lime.<sup>1</sup> The second prism  $e^2$  is considered to be the limiting form of the rhombohedron, and is represented by Mohs by the symbol  $R + \infty$ , and by Haidinger by  $\infty R$ . Zippe also adopts the latter.

According to Häüy  $d'$  or  $\infty P$  is rare, and Dufrenoy states that only some examples are known. According to Zippe, it is frequent enough in combination as a secondary form, but seldomer as the dominant form. Surmounted by the primitive rhombohedron ( $R$  or  $P$ ), it is noticed by Dufrenoy as "a very rare example of the prism on the edges, associated with the primitive rhombohedron"<sup>2</sup> from Cumberland. He also mentions another in which  $b'$  or  $\frac{1}{2}R'$  (the *equiaxe* of Häüy) replaces  $P$  or  $R$ , but does not give the locality. Further on he notices a third example from the Samson mine in the Hartz, in which the horizontal edges of the prism are truncated by rudimentary planes of the pyramid.

The prism  $\infty R$  or  $e^2$ , although comparatively rare as a simple form, is very frequent in combination; according to Dufrenoy indeed, it is the only one found complete. A little before, he says that it is of a milky whiteness, and almost always opaque. The base sometimes bears striæ parallel to the edges, which are indications of cleavage. Examples of  $\infty R$  surmounted by  $\frac{1}{2}R'$  or  $b'$  from the Hartz, Cumberland, and the department of l'Isere, have been described.

The position of the rhombohedrons surmounting the prisms is different in each kind. In  $\infty P$  the surmounting rhombohedral faces lie so that the edges of combination with the prismatic faces coincide with the lateral edges of the rhombohedron. In  $\infty R$  the edges of combination in three alternate faces are horizontal; the truncatures at either end of the prism alternating, so that each face of truncature is parallel to one at the opposite end. The directions of the cleavages correspond perfectly with the dispositions of the modifying planes, so that every alternate basal edge of the prism  $\infty R$  or  $e^2$  may be removed by cleavage with the greatest facility, by which a prism surmounted by the faces of the rhombohedron may be obtained.

Although the prismatic faces  $\infty R$  are sometimes dull, they always, at least in all the crystals which I recollect to have seen, possess more lustre than the faces  $\infty P$  associated with them. The former are, indeed, usually very bright in transparent crystals. This circumstance is noticed by Dufrenoy, who, in speaking of the example of  $\infty P$  or ( $d'$ ) with pyramidal trun-

<sup>1</sup> Uebersicht der Krystallgestalten des rhomboedriscchen Kalk-Haloids von F. X. M. Zippe.—Denkschriften der Kaiser. Akademie der Wissenschaften. Mathematisch-naturwissenschaftliche Classe iii. Bd. 1st Lief. p. 169.

<sup>2</sup> Traité de Minéralogie par A. Dufrenoy. 2me Ed. Tome 2me, p. 297.

catures of the lateral edges, from Samson mine in the Hartz, says that the faces are dull and somewhat rough, as is frequently the case with those prisms ("les faces en sont mates et un peu raboteuses, circonstance frequent pour le second prism (*i. e.*,  $d^1$ ) à six faces"). The difference in lustre between the faces of the two kinds of prisms is characteristically seen in the dodecagonal prisms (chaux carbonatée periododecaédre of Häüy), which is the combination  $\infty P$ ,  $\infty R$ ,  $oP$  ( $d^1 e^2 a^1$ ); the faces  $\infty R$  ( $e^2$ ) are always very much more brilliant than  $\infty P$  ( $d^1$ ). This difference of lustre is one of the distinctions relied upon to distinguish the faces of the two kinds of hexagonal prisms from one another. Dufrenoy also notices this difference between the two kinds of prismatic faces in the twelve-sided prisms.

Several forms of the rhombohedral prism occur at the Luganure mines, county of Wicklow, which are worked for galena in a vein-stone consisting chiefly of quartz, in a granite country. Among these may be mentioned  $\infty P$ ,  $oR$  ( $d^1, a^1$ ), consisting of small hexagonal prisms, with very bright prismatic faces. One half of the prism is hyaline, and the other opalescent; the base,  $oR$  is dull. Another variety of the same form also occurs, consisting of crystals one centimetre high, and with basal edges one centimetre long. Each crystal has a sort of rude triangular prismatic milky nucleus, surrounded by a perfectly hyaline envelope, reminding one of the description of Häüy given above. Owing to the number of cleavage planes, some crystals are not transparent. The face  $oR$  is, in most instances, peculiarly striated, in others it is, as it were, coated with a thin porcelainous layer. These crystals may be easily cleaved parallel to the alternate basal edges, which are sharp, and without any trace of modifying planes. The form  $oR$ ,  $\infty R$  ( $a^1, e^2$ ) also occurs in beautiful hexagonal plates, with very bright prismatic faces, and composed of exceedingly thin alternating layers of white opaque, and hyaline matter, the base  $oR$  being always opaque, dull, but beautifully white. Häüy's description of the prismatic kind embraces this variety likewise—in fact, the specimens from Luganure here described illustrate perfectly Häüy's description.

I have lately, however, met with another form, consisting of hexagonal plates, of from one millimetre to one and a half thick, with basal edges of from five to twenty millimetres. The base has a bright nacreous lustre, much brighter than what I have ever seen in any other specimen; striated and uneven, in consequence of the lapping of smaller plates. The most of the tabular prisms are, in fact, compound twins to the base  $oR$  ( $a^1$ ). Some twins also occur to the faces of the prism, and finally, to a



rhombohedron. It is owing to this twin structure that the crystals are not generally transparent, for in thin plates they are perfectly hyaline. Except for the difference of form, a mass of these crystals, resting on crystalline quartz, resembles, in a striking manner, a mass of large crystals of chlorate of potash. Layers of growth in the direction of the secondary axes can be observed in some of the prisms; in many of these the outer shell, about one millimetre thick, is frequently free from indications of cleavage, and perfectly transparent. The prismatic faces are dull, exactly like the appearance of white wax, when sufficiently thin to be translucent; they are also uneven. These faces exactly resemble those of the prism  $\infty P (d')$ , in specimens which I have seen from Andreasberg. On this account, I concluded, at first sight, that I had the combination  $oP, \infty P$ , which would be not merely rare as an example of the pyramidal prism, but still more so as a tabular form of it, in which the base would impress its character upon the crystal, and of which I have not seen any example recorded. I found, however, that the alternate edges were modified by rudimentary facets of a rhombohedron, which was placed in the same position, as regards the faces of the prism, that I have before mentioned as characteristic of  $\infty R$ . The basal edges not modified were easily removed by cleavage. I found the modifying facets to be those of the rhombohedron  $\frac{1}{2} R'$  or  $b'$ .

Associated with the crystals just described, were sometimes found white opaque crystals, like those from Andreasberg, and others three or four millimetres thick, upon which were rudimentary facets of a scalenohedron. I have not been able to get any good specimens of these varieties.

It may be worth while to enumerate, from Zippe's excellent memoir, the tabular prismatic forms which have been hitherto observed; with a view of determining the exact position of the example just described in the series. They are as follow:

1.  $oR, 2P, \infty R, \infty P (a', e^2, e^2, d')$  figured by Levy.<sup>3</sup>
2.  $oR, \frac{1}{2} R', \infty R (a', b', e^2)$  white tabular crystals from Wear-dale in Durham.
3.  $oR, \infty R, \infty P (a', e^2, d')$  from Andreasberg.
4.  $oR, 2R' \infty R, \infty P (a', e', e^2, d')$  from Andreasberg.
5.  $oR, \frac{1}{4} R', \frac{5}{10} R, \infty P$  from Andreasberg.
6.  $oR, \infty R$  from Andreasberg, Marienberg, Schneeberg, Joachimsthal, and Schemnitz.

The last mentioned form from Luganure, which is  $oR, \infty R$ ,

<sup>3</sup> Description d'une collection de minéraux formée par H. Heuland, etc. Londres, 1837, fig. 87.

$\frac{1}{2}R'$  ( $a^1, e^2, b^1$ ), approaches nearest to No. 6, from which it differs, so far as can be expressed by a formula, only by the rudimentary rhombohedral facets. If the faces  $\frac{1}{2}R'$  became so developed as to render the faces  $\infty R$  subordinate to them, it would pass into the form No. 2 from Weardale. I have, indeed, found a few imperfect crystals from Luganure, in which the prismatic faces are only rudimentary, the outline of the tabular crystal being rhombohedral.

Although, as I have above observed, the prismatic faces  $\infty R$  are sometimes dull, the combination of brilliant nacreous  $oR$  faces with wax-like prismatic faces exactly like those characteristic of the faces  $\infty P$  is, so far as I am aware, extremely rare. In the mineralogical collection of the Museum of Irish Industry there is a specimen from Andreasberg, in tabular crystals somewhat thicker than those from Luganure, which I have described. The same kind of rudimentary facets occur in the alternate basal edges. I have not had an opportunity of determining whether they belong to  $\frac{1}{2}R'$  ( $b^1$ ). The prismatic faces have the wax-like dullness of the Luganure specimens, but the crystals are opaque, and the faces  $oR$  are dull, and, in other respects, very different in appearance from those just mentioned. In the same collection characteristic specimens of the other forms from Luganure, which I have mentioned, are to be found, as well as of several others, of which I have not yet been able to procure specimens.<sup>4</sup>

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<sup>4</sup> It is to be regretted that the description, both crystallographic and mineralogical, of the minerals from Irish localities, which are to be found in Irish collections, have not been more generally published. It is only by the careful study of the conditions under which certain forms of minerals are found, the first element of which is a faithful record of the circumscribed localities in which they occur, that we can hope to arrive at a solution of the important problem in molecular physics—the causes which produce modifications of form in bodies. The “Manual of the Mineralogy of Great Britain and Ireland, by Robert Philips Greg. F.G.S., and William G. Letsom”, forming, I believe, one of the admirable series of Van Voorst, is a most praiseworthy step in this direction. It is with regret, however, that I have to state that this otherwise excellent and useful work is full of the gravest errors regarding Irish localities; errors, too, of the strangest kind, not mineralogical, but geographical, and which one would scarcely expect to find made respecting the divisions of an Asiatic country. I do not speak of such errors as *Rovenagh* and *Borenagh* for *Bovevagh* (pp. 54 and 88), *Bum Beg* for *Bun Beg* (p. 101), or *Glen Maceness* for *Glenmacnass*, which are however, too numerous to be pardonable, but of such errors as County of *Cavenagh* for County of *Cavan* (p. 20); “Ballygahan mine, at Glandore, County of Wicklow” (p. 279), Glandore being in the County of Cork; “Knockmahon and Tigroney in Waterford” (p. 305), Tigroney being in Wicklow; “In Wicklow, at Audley mine” (p. 311), Audley mine being in the County of Cork. I hope a second edition will enable the authors, not only to correct these errors, but to greatly extend the list of localities.

ART. VIII.—*Observations on the Geological Formation and Chemical Composition of the Surface Deposits from which Vegetable Soils are Formed.* By WILLIAM K. SULLIVAN.

IN almost every country in the world, and in all latitudes, superficial accumulations of clay, sand, and gravel occur, sometimes forming a mere coating of the rocks beneath, but often of very considerable thickness, and covering large areas, as in Central Asia, Russia, North and South America. These accumulations may, no doubt, belong to different geological epochs, and be due to different causes, but the immediate physical conditions under which they were deposited where we find them, appear to have been very similar. These accumulations consist of the detritus of rocks, of various sizes, sometimes confusedly mixed up, but often also consisting of more or less perfectly stratified beds of clay, sand, and pebbles. The latter are invariably rounded like the pebbles of sea beaches, and are, therefore, direct evidence that they were subjected to the action of moving water long enough to round them by their mutual attrition.

These superficial accumulations have not received that attention from geologists which their extent as a portion of the earth's crust entitles them to, and which their importance in connection with animal and vegetable life imperatively demands. The causes to which they are due have, however, been often speculated upon, but while all have admitted the agency of water in some way, various theories have been proposed to account for its mode of action. Geological opinion has undergone a notable change since the period, not long since, when the phenomena observed in studying the physical constitution of the globe were explained by violent cataclasms succeeded by periods of repose. There is now a disposition to consider that the continued action of existing causes is sufficient to satisfactorily explain all the phenomena which the study of the earth's crust makes us acquainted with. The hypothesis which attributed the formation of these superficial accumulations to sudden and violent waves sweeping over the country, bearing along masses of rock detritus, has accordingly fallen into oblivion. It could only have been proposed in ignorance, or, at all events, in utter forgetfulness, of the phenomena which it proposed to account for, inasmuch as it left not only unexplained, but was even wholly at variance with, some of the most important of them; it did not, for instance, show what originally produced and rounded the gravel, and ground into sand and clay such enormous masses of rock as must have



been necessary to form such extensive deposits. A series of great waves sweeping along may have transported the detritus, but it could scarcely have produced it; it could only remove matter from one place and deposit it on another: and, secondly, how could a few violent waves possessing force enough to carry along detritus sufficient to cover immense districts to the depth, often, of more than one hundred feet, produce the ripple marks indicative of ordinary tides, which may be so frequently observed on the layers of sand, or, indeed, produce the regular stratification which occurs frequently in such deposits, the clay of which is often finely laminated, and yet covered with alternating layers of gravel, sand, etc.?

The isolated islands of one kind of rock, which are found in many places resting upon other rocks, such as the outlier of carboniferous limestone at Taghmon, in the county of Wexford, described by Mr. Jukes (to take an example from a district not very far from that which will hereafter furnish us with the chief data regarding the formation of soils), show us that at one period these isolated masses formed part of a continuous sheet of the same rock, which covered the whole of the intervening country between the outlier and the main mass. Many valleys also prove that they have been formed by erosion, the opposite sides showing the corresponding sections of the eroded rocks. This partial or complete removal of the rocks of a district is termed denudation, and is obviously an important process for modifying the physical features of a country. The detritus of the rocks removed must have formed the materials of new formations. This process was, no doubt in full activity at all geological periods, and may be set down as the source of the superficial accumulations which I have been discussing.

Any hypothesis which pretends to explain the formation of such deposits must be two-fold: it must not merely explain the circumstances under which they were deposited, but must also include an explanation of the origin of the materials of which they are composed, that is, explain the cause and manner of the denudation which produced the clay, sand, and gravel. The wave-theory, or other violent causes, having been found untenable, it has been proposed to account for both the deposition of these deposits, and the denudation which gave the materials, by the action, sometimes singly, and sometimes conjointly, of currents, glaciers, and floating ice. The existence, at one period, of a great glacial sea in Western Europe has been received with considerable favour by, perhaps, the majority of geologists. The recognition of ice as an agent in abrading rocks, and transporting the detritus, if it did not actually originate with the inves-

tigations of Agassiz on the glaciers of the Swiss Alps, certainly received from them a more extended geological application. The moraines which those frozen rivers bear on their surface explain very satisfactorily the occurrence of the detritus of the higher mountains far down in the valleys, in positions which, it would be difficult to suppose, they reached through the agency of liquid water alone. Their onward motion accounts for the grooved surface of rocks, and for the erosion, at least in part, of some valleys. The floating about of icebergs, formed of detached masses of glaciers, which run into lakes or seas, and leaving upon them part of the detritus, which constitutes the moraines, affords, no doubt, a very satisfactory explanation, though, certainly, not the only possible one, of the distribution of erratic blocks, which are found scattered over many parts of Europe. The discussion of the glacial theory does not, however, enter into the subject of the present paper, and has only been incidentally mentioned in order that, in discussing hereafter the nature of the materials of which soils are composed, we may be enabled to keep in mind the geological bearings of the subject.

## §. 2.

The vegetable soil rests upon the accumulations of sand, clay, etc., wherever they occur. Sometimes it is simply a portion of the upper layer intermixed with vegetable matter, and more or less acted upon by the oxygen of the air. Sometimes it appears to be a different deposit from the mass upon which it rests. In either case the soil must have likewise been formed by matter transported by water. Some of the richest soils in the world have, undoubtedly, been formed by alluvial mud, that is, by matter carried down by rivers, and which is deposited in lakes or estuaries. Some soils have also been slowly formed by the action of water and air, aided by plants, upon the surface of rocks. Such soils are usually very thin, even where the rock decomposes rapidly, and except where land-slips have taken place, or where they have been formed upon the steep sides of hills, and gradually fallen down, they rest directly upon the rock from which they are formed. I have seen a calcareous ash conglomerate, which decomposed so rapidly and perfectly, that a block which still exhibited the planes of jointing was permeated to the depth of several inches by the roots of plants, and pierced by numerous worm-holes, and crumbled between the fingers into a yellowish brown loam, while in the interior it was gray and as hard as limestone. But even those soils which have been formed by decomposition of the subjacent rock are subjected to the action of running water, which, without being able to carry

the whole mass away, nevertheless continually washes out the finest part, which it bears away as mud and deposits upon the lower grounds.

The few observations which I have made are sufficient to show that very great differences may exist between soils, which may be entirely due to the manner in which they are formed. In any inquiry concerning the properties of soils, our first business should obviously be to endeavour to ascertain the manner in which the particular ones to be examined were formed. From this point of view we may classify soils into: 1. those which have been formed by the slow decay of the subjacent rocks, and which have not consequently been subjected to the action of water, beyond that which falls upon them as rain; 2. alluvial soils, or those formed by the detritus and mud of rivers; and 3. soils which rest upon the detritus of ancient sea-beaches or sea-bottoms. The general character of the first kind of soils is indicated by that of the rock upon which they rest. If it be homogeneous, that is, composed of one kind of mineral, the soil will consist of the detritus of that mineral, more or less decomposed. The chemical properties of two specimens of such a soil will not be found to materially differ, while the physical properties may be totally unlike. If, on the other hand, the rock be a mixture of several minerals, the qualities of the soil may vary considerably within short spaces, according as one or the other constituent predominated. The second and third kinds of soil being made up in most cases of the detritus of many rocks, mixed in ever-varying proportions, no two specimens can possess the same composition or physical properties. This fact, which is of the greatest importance in connection with all attempts to determine the comparative values of different soils, will be rendered more evident by a discussion of the action of water in transporting detritus and depositing it in new positions.

### §. 3.

The transporting power of water depends upon its velocity; according to Hopkins, the law of its progressive increase, estimated by the weight of the pebbles of a given form and density, which it is capable of stirring, is as the sixth power of the velocity of the current; that is, if we double the swiftness of a current, it will move pebbles of the same density and form, sixty-four times as heavy: if we quadruple its velocity, the weight capable of being moved will be increased 2048 times. The most casual observation shows us that, whatever may be the propelling force of a current of water, it cannot



move all kinds of detritus with the same facility; the motability of the latter depends upon the size, density, and form of the component particles, and on the position of each with regard to the neighbouring ones, that is, to the existence of greater or lesser obstacles in the way of their onward motion. The less the density and weight, other things being equal, the more easily pebbles are moved along. The more nearly a pebble approaches a sphere, the more readily it can be moved; the flatter or more elongated or angular the forms, the more force will be required to move it. If a heap of detritus consisting of different sized worn fragments of coal sandstone (sp. gr. 2.60), Silurian sandstone (sp. gr. 2.76), carboniferous limestone (sp. gr. 2.72), coal shale (sp. gr. 2.59), mica slate (sp. gr. 2.69), greenstone (sp. gr. 2.85), were to be exposed to the action of a current of water moving at a certain velocity, it would be found that those rocks which wear into more or less round fragments would move first, following the order of their density and volume. Those, on the contrary, which were flat, as the shales and slates, would be moved with most difficulty. The result would be a redistribution of the detritus, by which the largest fragments of coal grit, sandstone, and limestone would be mingled with the smaller fragments of slate; the larger fragments of the slate, being most difficult to move, would be nearly altogether separated from the rocks which form round pebbles. But even the disposition of the latter would vary at every step, according as the influence of form, density, or volume would dominate or compensate.

If we watch the action of a current of water upon detritus, we shall find that the transportation is effected in two distinct ways: 1. by shoving the fragments along the ground; and 2. by lifting them and bearing them along. It is obvious that the comparative amount of detritus which would be transported in each way would greatly modify the arrangement of the fragments when again at rest. The proportion lifted would depend, among other things, upon the density of the substances forming the detritus—the pebbles of smaller specific gravity being more easily moved than those of higher, upon the force of the current, and the slope or inclination of the bottom upon which the detritus moved. The greater the inclination in the direction of the current, the more easily would the material be lifted. Hence, on a shelving shore, the detritus is oftener lifted up by the retiring wave than by the advancing one.

#### §. 4.

The distribution of detritus shoved along would be very dif-

ferent from that transported while in suspension. The finer part of all detritus is always lifted, and as it is precisely that part which is of most importance in the formation of soils, it will be desirable to study somewhat more in detail the circumstances upon which the deposition of solid matter in suspension in water depends. Those circumstances are extremely variable, and scarcely admit of accurate determination. It is not difficult to determine the velocity with which homogeneous bodies of a definite form freely fall, without initial velocity, through a fluid. M. De Hennezel, for instance, finds that the acquired velocity at any moment of a spherical body, falling, without initial velocity, in a resisting medium, varies according to a law of progression somewhat less rapid than the direct ratio of the square roots of the density and the diameter of the body, and in the inverse ratio of the square root of the density of the fluid.<sup>1</sup> Hence it follows that for two spherical bodies of the densities  $D$  and  $d$ , and the diameters  $\Delta$  and  $\delta$ , falling each in a fluid of the density  $Q$  for the first, and  $q$  for the second, the corresponding velocities,  $V$  and  $v$ , will be given in functions of one another by the expression

$$\frac{V}{v} = \sqrt{\frac{D \times \Delta \times q}{d \times \delta \times Q}}$$

This law has been experimentally confirmed by M. Pernolet. It would, however, be clearly impracticable to attempt to give an expression for the fall of bodies of indeterminate shape, and whose motion, in addition, would be modified at every instant by impinging against each other. Indeed, mathematical expressions, were they possible, would scarcely be useful. Still it is always desirable to have some accurate data as standards by which to correct our general conclusions.

The chief circumstances which influence the fall of bodies in water are, volume or size, density, and shape, being in fact the same that influence the motability when exposed to a current of water. The foregoing formula will give us a standard by which to estimate the influence which calibre and density would have on the velocity of falling bodies. Fortunately an interesting series of experiments, made by M. Pernolet with a view of ascertaining how far metallic ores could be concentrated for the purposes of smelting by allowing them to fall through water,<sup>2</sup> afford us some data for estimating the influence of form, which is by far the most important of the three. By experiments made with different sized shot in their usual spherical form, and more or less flattened, he has shown that it requires a difference of calibre in

<sup>1</sup> *Annal. des Mines*, 4<sup>me</sup> Série, t. iv., p. 353.

<sup>2</sup> *Ibid.*, t. xx., pp. 389, 535.

the proportion of 1:2 in order to produce a difference in the time of fall in the proportion of 1 to less than  $1\frac{1}{2}$ , while the slightest possible change of form, such, for example, as that of a sphere into a cube or cylinder, the dimensions of which would be  $\frac{1}{7}$  less than the diameter of the sphere, would be sufficient to produce an equal difference in the duration of the fall. The following table shows the results which M. Pernolet obtained in experiments made upon the fall in a column of water 6 metres high, of 11 pieces of lead of the same volume, but shaped differently, but so that the greatest dimensions of any of them did not exceed twice the diameter of the one formed into a sphere.

Form.	Diameter in Millimètres.	Thickness in Millimètres.	Duration of fall in Seconds.
1 Sphere	14 to 15	14 to 15	3.91
2 Cube	11 „ 12	11 „ 12	5.85
3 Cylinder	11 „ 12	13 „ 14	5.25
4 „	17	7	6.50
5 „	20	5 to 6	7.16
6 Prism	8 by 8	26 „ 27	7.33
7 „	17 „ 19	5 „ 7	7.60
8 „	22 „ 23	3 „ 4	9.25
9 „	63 „ $3\frac{1}{2}$	2	8.33
10 Cylinder	26	3 to 4	9.50
11 „	42	$1\frac{1}{4}$	10.67 <sup>3</sup>

This table shows in a striking manner the influence of shape alone on the velocity of bodies falling through water.

The result of a number of experiments upon spheres of the same density, but of different weights, showed that a difference in the diameters in the ratio of 1 : 2, produced a difference in the times of fall in the ratio of 1,000 : 1,414; and that, in order to double the time of fall, the diameter should be reduced in the ratio of 4 : 1. M. Pernolet was not able to determine experimentally the influence of density upon the time of fall, but the maximum influence may be stated to be about 100 : 300, or that between quartz and platinum; but as the densities of the commoner rocks differ but very little from each other, the maximum variation produced, in the time of fall of detritus of rocks by this cause, would certainly not exceed the ratio of 100 to 115.

<sup>3</sup> *Observations.*—No. 1, the time varied between 3'' and 4''; No. 6, the time also varied in this case between 7'' and 8'', the former corresponding to a vertical fall, and the latter to a spiral one. No. 8 was thrown on the flat, or in the direction of its chief axis, without producing any variation in the time of fall. No. 9 always fell flat, whether it was thrown so or in the direction of its major axis. No. 11 was always thrown flat, and yet the duration varied from 10'' to 12''.



## §. 5.

We have now to consider what would be the combined effect of all the influences which could modify the time of fall of bodies in water. To determine this point, it would be necessary to experiment upon bodies of different densities, volumes, and shapes, simultaneously. It is, however, very difficult to do this. I have attempted some experiments to determine the order of deposit of detritus of various sizes, density, and shape; but not having adequate means at my disposal, the results which I have as yet obtained are of no further use than to show the difficulties which beset such experiments, except, indeed, that they sufficiently indicate the character of the results which may be looked for. In the absence of data of this kind, it is fortunate that we possess some experiments of M. Pernolet, in which he sought to determine the same thing, though for a different purpose, with those minerals which it is the object of the process for washing ores to separate. He took pebbles of galena, quartz, and coal, substances which exhibit a considerable difference in their relative densities, divided into four classes according to size, the classification being effected by means of gratings of given dimensions. As the bodies which escape through a grating of any given dimension are not, as is well known, of the same size, it was necessary to sort by the hand each class into groups, including, as far as possible, fragments of equal size. The time of fall for each group, of each class, as in those already quoted, was made by a series of observations upon the fall of isolated grains through a column of water 6 metres high, and 0<sup>m</sup> 20 in diameter. Similar experiments were made upon the sand produced by crushing galena, which has a cubical fracture, crystalline pyrites, blende, which breaks into smaller fragments, lamellar sulphate of baryta, lamellar carbonate of lime, ribbon quartz, plumbago, and bituminous coal, classified into seven classes.

It is important to observe here that considerable difference may exist between the velocity of fall of the same substances in the state of pebbles and of very fine powder. Bodies of lamellar structure, for example, may form round pebbles, but when ground to fine powder, the particles forming the powder would consist of thin plates. The result of this would be, that while the pebbles might be amongst those which descend fastest, the fine mud produced by their attrition might be one of the slowest descending kinds. Even though we may not be able to detect any difference of form between the particles composing the finest powders of different bodies, there can be no doubt that such a difference exists. But as many minerals may occur in several states of aggregation, the mud produced by

them in each would possess different velocities of fall. It is therefore necessary to specify, as above, the structure of the minerals used in M. Pernolet's experiments. Owing to the long time which all fine matters suspended in water take to deposit, the slightest difference in form or specific gravity between them, influences their time of deposition. Of course, the greater the height of the column of water through which bodies fall, the greater will be the duration of the time of fall, and consequently the greater will be the effects of differences of specific gravity and shape. Increasing the height of the fall is, consequently, equivalent to reducing the substance to a finer state of division, bearing in mind, however, the circumstance just alluded to, that there may be great differences of shape between the pebbles and powder which a substance would form.

The following tables contain the results of those experiments; in the case of the pebbles, the results for each group are not given, only the extreme ones, and, in some cases, one or two intermediate ones.

Table showing the relative Duration of the fall of different size pebbles of Galena, Quartz, and Coal through still water.

No.	Dimensions of the Meshes of the Wire Gauze used to classify the pebbles.		GALENA.		QUARTZ.		COAL.	
	The pebbles passed thro' meshes the side of which measured in millimètres:	The pebbles remained on meshes the side of which measured in millimètres:	Weight of pebbles in grammes.	Duration of fall in seconds.	Weight of pebbles in grammes.	Duration of fall in seconds.	Weight of pebbles in grammes.	Duration of fall in seconds.
1	30	18	78.33	4'60	44.20	9"30	18.00	22"20
			45.25	5 87	25.17	10 41	11.25	29 77
			17.50	5 92	2.70	22 80	5.00	32 40
							3.75	43 40
2	18	7	21.25	5 40	10.70	12 60	5.00	31 45
			12.25	6 31	4.00	14 10	2.50	30 00
			1.43	8 30	0.214	24 00	0.333	42 00
						37 20		45 60
3	7	5½	1.416	8 40	0.900	15 60	0.225	41 79
					0.675	20 85		62 50
					0.333	25 00	0.150	47 81
			0.040	9 60	0.234	20 19		
4	5½	On round holes 4.44 mm. in diameter.	0.600	9 84	0.300	21 19	0.150	60 75
					0.100	23 62	0.075	57 75
			0.120	12 22	0.062	37 80		
					0.022	26 20	0.020	67 20
						73 95		115 80

*Table showing the Relative Duration of the fall of different kinds of Sand through still water.*

No.	Diameter in Millimètres of the round holes of the sieves used:		Duration in Seconds of the fall through a column of still water 6 mètres deep, of the following Minerals:							
	The grains passed through holes:	The grains rested upon sieves with holes:	Galena.	Crystallized Pyrites.	Blende	Sulphate of Baryta.	Calcite.	Quartz.	Plumbago.	Bituminous Coal.
1	4.44	4.17	{ 9"00 15 40	{ 13"50 17 00	{ 13"67 20 34	{ 14"67 19 00	{ 18"66 27 66	{ 21"25 66 00	{ 25"33 44 00	{ 75"00 100 50
2	3.94	3.67	{ 12 50 17 45	{ 16 67 24 50	{ 19 00 36 25	{ 17 50 27 25	{ 22 26 44 00	{ 25 95 65 40	{ 40 75 81 33	{ 65 50 146 00
3	2.77	2.50	{ 15 51 21 75	{ 20 35 32 50	{ 25 33 53 00	{ 21 00 45 57	{ 30 00 52 00	{ 30 09 118 50	{ 47 33 105 67	{ 79 00 214 00
4	1.77	1.50	{ 18 48 31 20	{ 36 50 38 00	{ 41 67 75 67	{ 31 33 70 66	{ 37 00 85 00	{ 45 50 75 50	{ 64 33 181 33	{ 122 25 308 75
5	1.50	remain- ed on lawn.	{ 22 00 41 25	{ 29 99 94 33	{ 37 33 102 66	{ 39 50 97 25	{ 56 25 150 25	{ 52 00 123 67	" "	" "
6	passed through lawn.	remain- ed on silik.	{ 46 75 122 08	{ 25 00 51 33	" "	{ 65 00 124 60	{ 98 65 260 15	{ 121 50 227 50	" "	" "
7	Passed through silk.		{ 67 00 163 00	" "	" "	{ 61 67 145 34	{ 111 99 283 00	" "	" "	" "

These tables show us in a very striking manner the joint influence of density, size, and form upon the fall of bodies in water, and consequently indicate to us what would be the general order of deposition of a heterogeneous mass of *débris*. Thus, for example, the different kinds of pebbles named in the first class might be more or less separated from one another by dropping them into a column of water about twenty feet high, provided each pebble was able to fall freely. Pebbles of quartz and galena, of the sizes included in the second class, would also be separated, while some of the smaller quartz and larger coal pebbles would be deposited together. Similar results would be obtained with pebbles of the sizes included in the third and fourth classes. But if all the kinds and sizes included under the four classes in the table were dropped into water, the smaller



fragments of galena and the larger pebbles of quartz would be deposited together, while beneath, the galena, would be almost free from quartz; upon the mixture of galena and quartz, a layer of the larger pebbles of quartz would be deposited; upon this, a mixture of quartz and coal; and lastly, coal-dust. If the different kinds of sand named under class 1, were dropped into water, and that the descending grains did not interfere with one another, we would have the following order of deposition, beginning at the bottom: 1. a little galena; 2. a varying mixture of galena, pyrites, and blende; 3. galena, pyrites, blende, and sulphate of baryta; 4. blende, sulphate of baryta, and carbonate of lime; 5. blende and carbonate of lime; 6. carbonate of lime and quartz; 7. quartz and plumbago; 8. unmixed quartz; and 9. unmixed coal. If sands of all dimensions and kinds were mingled together and dropped into a column of water of about twenty feet high, the separation of the different kinds of sand would be still less perfect, but the grains of each of the substances deposited together would be of different sizes; thus, galena powder, which would pass through lawn, would be deposited in equal time with grains of blende which would not pass through holes 1<sup>mm</sup>.5 in diameter, sulphate of baryta of all dimensions below that which would rest on holes 2<sup>mm</sup>.50 in diameter, calcite grains varying in size from those which would just pass through holes of 2<sup>mm</sup>.5 in diameter, down to powder that would just remain on lawn, quartz of nearly all sizes, plumbago of nearly all sizes, down to grains which would rest on sieves with holes of 1<sup>mm</sup>.5, and lastly, coal of all sizes, down to grains which would scarcely pass through holes of about 2<sup>mm</sup>.7.

Form and specific gravity also influence the fall of precipitates of different bodies simultaneously thrown down; and accordingly, if two or three bodies be precipitated at the same time from a solution, in sufficient quantity to form a deposit of from one to two inches thick, it will be found that the bodies formed by the decomposition will not be uniformly mingled in the deposit. The consistence of precipitates, and even the form of their particles, may be differently modified by heat; the relative proportions of the different substances in various parts of a deposit formed by chemical precipitation will, therefore, vary according to the temperature at which the precipitation takes place. It is also probable that the form of the particles of a precipitate may have some influence in the mutual decomposition of salts, a subject which I hope to be able to discuss more fully at another time. Where precipitations take place in great bodies of water, as in seas and oceans, a more or less complete separation of simultaneously precipitated substances may be

effected in this manner—a circumstance which may help to explain many obscure geological phenomena.

### §. 6.

The application of the preceding tables and observations to explain the phenomena of geological deposits is obvious. It must, however, be borne in mind that the tables of M. Pernolet were constructed upon data obtained in experiments made upon isolated grains, or, at least, upon such small quantities of sand that the different particles could not interfere with one another's motions. The fall of detritus in water would, however, be a much more complicated phenomenon. In the first place, the depositions would rarely take place in perfectly still water, but more generally in currents of variable force, which would give very complicated resultants for the actual forces influencing the deposition: then the individual pebbles, grains of sand, or particles of mud, would not commence their fall at the same moment; there would, on the contrary, be a succession of falls,—the most rapidly falling bodies starting at one moment, overtaking the slower falling ones of the preceding intervals of time; and, again, the agitation of the water would cause the neighbouring pebbles, grains, or particles to impinge against each other, and thus modify the duration of one another's fall. It is evident from this, that, in reality, no complete separation of the materials of detritus could take place by falling through water. The shallower the water and the larger the pebbles, the more confused would be the arrangement of the deposit; the deeper the water and the finer the detritus, the more perfect would be the separation according to size, density, and form. But, however confused the arrangement of a heap of detritus deposited in water may be, the operation of the three circumstances influencing the fall of bodies just named may be traced in it.

The deposits formed in deep seas, taking into account the nature of the detritus which may happen to come into them, must consequently be more homogeneous than those formed in troubled shallow water. The influence of the duration of the time of fall may often be traced in the laminæ of sandy slates and shales, not merely in regard to the proportion of sand and silt in each layer, but even in the composition of the fine silty layers themselves. The difference in the mechanical and chemical composition of argillaceous and arenaceous rocks is often rendered strikingly evident in rocks which have become foliated under the influence of heat and pressure. Hence it is that there is so little accordance between the different analyses which have been made of specimens of these, or, indeed, of any sedimentary rocks not

composed of a single chemical substance, such as sulphate or carbonate of lime.

On sea-beaches, and narrow channels between islands, the mechanical aspect, and, in general, the chemical composition, of the deposits of detritus must vary at almost every step, because the forces which have influenced that deposition must have varied at almost every instant, owing to the changes in depth of the water, force and direction of currents, and the comparative freedom or obstruction offered to the motion of the individual pebbles, grains, etc., which would, among other things, depend upon the quantity and size of the detritus in suspension, or shoved along at the same time. In some cases, even another influencing circumstance, which I have not hitherto noticed at all, might come into play in the neighbourhood of great rivers—namely, the difference of density between sea and fresh water. The influence of this circumstance would, of course, be trifling, and I only mention it to show the great variety of causes which operate in the deposition of sediment in water. We may, accordingly, expect to find that the loose accumulations of sand, mud, and gravel, formed under the influence of all the causes named, in shallow, obstructed seas, would be confused mixtures of all sizes and kinds of materials at one point, coarsely stratified at another point, often within a few yards, or even feet; here thin bands or pockets of gravel in close proximity to similar ones of sand or clay; at another, great thick deposits of fine mud; and, at another, heaps of loose sifted gravel; and so on.

I have yet to notice another source of difference of composition in deposits,—the meeting of two currents bearing or shoving along detritus of different kinds of rocks. A strong tidal current moving along an extended shore formed of different kinds of rock, would mingle up the detritus of each, in some places more, and in others less. The meeting of two currents bearing different kinds of detritus may be prevented by a headland, or island, or reef of rock; in this case, we would find a complete difference between the detritus at opposite sides,—the two kinds being often separated by an interval of not more than a few yards. Again, after the deposition of a bed of detritus, the direction of the currents which transported it may be changed, and a current bearing a different kind pass over the same place, and leave a new and different deposit. This change of direction in currents is, indeed, the circumstance which most modifies the effects of density, size, and form in the deposition of transported matter, above all, of that shoved along. Its influence may be fully seen by watching the effects produced by damming up the bed of a small stream. Beds of detritus may



also be subjected to the action of water subsequent to their deposition, by which a complete or partial rearrangement of their materials would be effected. If distinct currents had successively deposited two or more beds of different kinds of materials, they may get mingled up, and only one bed formed in the redistribution. This circumstance should be borne in mind in any deductions made respecting the direction of the currents which transported any particular bed of drift from the kind of pebbles which it may contain.

### §. 7.

A large part of Ireland is covered with superficial accumulations of clay, sand, and gravel, which bear evidence of their having been subjected to the action of moving water. On this account the name "drift" is generally applied to them. In some districts the materials composing the drift appear to be derived in greater part from the breaking up of limestone rocks; in others the materials are derived from grits, slates, granite, etc. The former is chiefly found in districts the local rocks of which are limestone; but limestone drift is frequently found to rest on slate, and granite rocks also, and sometimes separated from any limestone rocks by a considerable tract of country. These accumulations are not confined to plains or the bottoms of valleys, but frequently occur on the sides of mountains, at heights of from 500 to 700 feet above the sea, and in some instances even at the height of more than 1,000 feet. The term drift is sometimes restricted to accumulations containing limestone pebbles, but such a distinction is not correct. I may observe here that the term limestone gravel seems to be given to a mass of detritus upon very slight grounds. I examined the pebbles contained in twenty-five deposits, of various degrees of fineness, described as limestone gravel, limestone drift, etc., and found that the amount of carbonate of lime in the pebbles of any of them did not exceed 23 per cent., while in several it fell below 1 per cent.

The materials of the drift deposits are sometimes confusedly mixed up and sometimes coarsely stratified, the beds of sand often exhibiting ripple marks. They also contain shells.

On the central plain of Ireland, the general outline of the country is either wholly given or greatly modified by the drift accumulations. In the depressions, the coarse limestone gravel is usually covered with calcareous clay, and upon this rests frequently a bed of shell marl consisting almost entirely of carbonate of lime,<sup>4</sup> and covered with turf, or sometimes inter-

<sup>4</sup> In four specimens from different parts of the Bog of Allen which I analyzed, I found 89.96, 92.61, 94.07, and 95.77 per cent. of carbonate of lime respectively.

stratified with turf. It is in the shell marl and calcareous clay of this kind that the bones of the gigantic elk are found. It would thus appear that the calcareous clay was deposited in lakes formed in the depressions in the limestone gravel, the ridges of which look in some places as if they had formed their shores. These lakes on becoming shallow became filled with diatomaceæ and fresh-water shells, and in time they became converted into peat swamps.

In some places the drift accumulations are composed of two well-marked separate deposits, the lower one being wholly composed of limestone gravel, and the upper of the *débris* of other rocks. There is a good example of this on the sea coast, a little beyond Graystones, a station of the railway between Bray and Wicklow; underneath is a bed of clay and limestone gravel, upon which rests clay and red grit and shale *débris*. No limestone now occurs in the district, but it is probable that this gravel is the result of the denudation of a former covering over the slate rocks which has been wholly removed. The slate rocks laid bare were, of course, also acted upon, and their detritus deposited upon the limestone.

In other localities masses of limestone gravel are found within a very short distance of accumulations containing pebbles of wholly different rocks. The drift of Howth, near Dublin, affords a good example of this kind. Leaving the town of Howth and proceeding along the north shore, near the Martello tower, I found the pebbles in the drift to consist chiefly of grits, limestone, one or two chalk flints, a few fragments of porphyritic greenstone, like that of Lambay, fragments of ferruginous quartz, like those forming the old red conglomerate of Lambay. On the road towards the coast-guard station, I found, in addition to the preceding, fragments of Mourne red granite, chalk flints, a large lump of greenstone, with green felspar crystals, a large block of Silurian conglomerate, like that on the south side of Lambay Island. At a little distance beyond the last house on the sea road, I found a fragment of weathered porphyry, like that which is seen on the shore near Donabate, fragments of porphyry, with a reddish paste, and green crystals exactly like that of Lambay. A little further to the eastward, I found epidotic greenstone, with purplish carbonate of lime, identical with the green rock enclosing lumps of carbonate of lime found a little to the north of the harbour of Lambay Island, a small fragment of granite, with black mica, a chalk flint, a fragment of decomposed Lambay porphyry. North of the lighthouse, I observed green and dark gray grits of local Howth rocks; pebbles of segregated argillaceous limestones, like those from the shales exposed in the railway

cutting near Donabate; Silurian limestone nodules, containing the characteristic fossils; large pebbles of hard highly crystalline limestone; compact trap, with a somewhat reddish paste; a mass of Lambay porphyry; Syenitic greenstone, with whitish paste and crystals of green hornblende, exactly like that forming Lambay Head; compact greenstone; Donabate fine conglomerate greenstone ash conglomerate, like that found near the south shore of Lambay; rolled quartz pebbles; one or two lumps of granite; grits and limestone; the latter two forming the chief mass. On the south side of the hill, and not far from the lighthouse, I observed nothing but local quartzose grits and slates, not containing any northern rocks. Near the Martello tower on the south side, the drift is, so far as I saw, unmixed black limestone gravel. This remarkable change in the character of the drift as we proceed round the Hill of Howth, proves that the physical conformation of the district during the deposition of the drift gravel was not much different from that now existing. A northern current brought the detritus of the shore north of Howth and of Lambay Island; where the headland deflected this current, the local rocks of the hill itself formed the detritus, while a western or north-western current brought limestone drift from the great limestone plain to the west.

A careful study of the materials forming the drift over a large area of country, would, with the aid of the principles above laid down, regarding the transportation of detritus, enable us to determine the direction and force of the currents which formed the drift, and the probable depth of the water in which it was deposited. The data thus obtained might enable us to determine approximatively the physical conformation of the land and sea during the drift epoch. Much assistance may be derived in such inquiries from a study of the ripple markings and bedding of the drift wherever it occurs. Mr. H. C. Sorby, as is well known, has shown how the direction of a current present during the deposition of a rock can be determined from the ripple markings, and what he calls "drift bedding", or, as he has since proposed to call the whole of this class of phenomena, "current structures". In the case of the drift, however, this kind of evidence would not be sufficient, though it would greatly aid that derived from the thorough study of the lithological character of the materials, contrasted with that of the rocks of the district.

#### §. 8.

The classification of soils which I made at p. 184, into those which have not been subjected to the action of running water



and into those which have been deposited in it, will sufficiently explain why I have gone into so much detail regarding the deposition and transportation of detritus. Every word which has been said in the preceding pages applies to the superficial layer forming the soil, whether it be a portion of the great mass of underlying drift, or another kind of detritus. Soils must consequently be formed, in the majority of cases, of a mixture of different minerals, in various states of aggregation, and must vary in chemical composition and physical properties, according as the relative proportion or sizes of the different minerals vary. Hence, no two samples of the same soil can be exactly alike in chemical or physical constitution. It is, therefore, no wonder that the experiment made by the Landes-Oekonomie-Collegium, or Board of Agriculture of Prussia, to ascertain the exhaustion of the soil by any given crop, should have proved a failure. They adopted the following method:—"Before the experiment, the chemical condition of the experimented field was first determined; it was then cultivated successively with the same crops (peas and rape), until it was incapable of yielding any more produce, when finally the condition of the exhausted soil was again ascertained by a similar analysis, in order to compare the difference thus obtained in the soil with the amount of ash of the successive crops. In order as much as possible to divest the results of all local influences, it was further resolved that the experiments should embrace soils in fourteen different places of the kingdom. Finally, as an accessory to the above condition, in the instructions issued for the undertaking, and committed to fourteen cultivators, the Board further required that a field of as nearly uniform character as possible should be selected; from ten or twelve different places of this field, equal quantities of the arable soil, through its entire depth, should be taken up with the spade, put into a deal barrow, well mixed (with a spade?), and the specimen taken from the mixture. Every sample was entrusted to three different chemists to be analyzed".<sup>5</sup> The difference between the results of the three analyses of the same sample of soil was quite as great as that between those of any two of the different soils examined by the same chemist. It must be remembered too, that these were not of the class of analyses which credulous farmers and enthusiastic amateur agriculturists are in the habit of getting executed in Great Britain and Ireland.

Besides the ever-changing proportion between the different ingredients of a soil, which render it physically impossible to

<sup>5</sup> Liebig and Kopp's Annual Report of the Progress of Chemistry, vol. 3, 1849, p. 468.

obtain an average specimen of it, there are other difficulties in the way of ascertaining the true chemical composition of soils, which I will discuss further on. In the mean time, I may state my opinion that, except in very rare instances, and that only in the case of soils formed by the decomposition of the subjacent rock, and where consequently they were not deposited in water, the results of the quantitative analyses of soils, supposing even that they were correct so far as the individual samples analyzed were concerned, would be wholly valueless. While holding this opinion, I believe, however, that a comparative examination of the lithological characters of the materials forming the soils of a district of country, if made on a scale sufficiently extensive to eliminate mere local errors, would be of great use to agriculture.

A few years since, Sir Robert Kane projected a series of agrological maps for each of the counties of Ireland, in which he proposed to represent, by different colours, the comparative values of the soils and subsoils, as determined by their chemical analysis. The idea of attempting to represent on a map the chemical character of the soils of a whole county was novel, and, if it could be executed, there can be no doubt that it would confer very great benefits on agriculture—more even than the geological maps, useful as they undoubtedly are: of course, I speak here of the agricultural use of the geological maps merely. A large number of specimens of the soils of the counties of Dublin, Wicklow, Kildare, Carlow, Kilkenny, Wexford, etc., were collected for the purpose of these maps by the officers of the Geological Survey of Ireland, and transmitted to the Museum of Irish Industry. The analysis of these soils formed part of my duty as chemist to that institution during several years, aided, during a part of the time, by Mr. Gages, the present curator of the Museum. The analyses of the soils and subsoils of several counties were completed. The water, organic matter, lime, and, where it was considerable, the magnesia also, the alumina, and peroxide of iron, sand, and clay, were the only constituents generally determined; but, on completing the whole of the soils of a county in this manner, a number of type soils were selected, and every ingredient determined. With the data thus furnished, Sir Robert Kane intended to prepare the maps. So far as I know, he only attempted the construction of one, in which he used, however, only the per-centage of clay, sand, and carbonaet of lime. In an undertaking of such magnitude and difficulty, many attempts must be made before the right method is discovered, and consequently, his first map must be considered as an experiment.

It is obvious, from what has been said above relative to the

mode of formation of soils, that no map could be constructed to represent the comparative composition of the soils of a district founded upon the proportion of sand, clay, and lime. No doubt these constituents may be said to represent the whole soil; and, again, the special character of a soil is really given by whichever constituent predominates. But the extent of the variation which may take place in the relative proportions of these ingredients in a few yards, may often exceed that which would be observed between fertile and barren soils. On flat and extensive plains, where but one kind of rock would prevail, there would be much more chance of uniformity of composition, both chemical and mechanical, than in a mountainous or rolling country, especially if there was a great diversity of rocks. It is probable that the soil which covers some of the great plains between the Alleghanies and California, over some of which the same kind of rock, as, for example, gypsum, spreads for more than a hundred miles, may be represented by a few analyses. This supposition receives considerable support from the circumstance that, on a district of more than a hundred miles long, about the upper course of the Rio Grande del Norte, the vegetation is almost exclusively confined to one or two species of *Artemisia*. In Russia, too, there are many districts, of which, undoubtedly, a map might be made to represent the chemical composition of the soil, founded upon data of the kind alluded to above, supposing no other objection than that of want of uniformity of composition, arising from the circumstances influencing the deposition of the detritus forming the soil, existed. But such an objection does exist in regard to the proportion of sand and clay, as I will explain hereafter.

### §. 9.

While engaged in making these analyses, I had an opportunity of examining minutely the lithological character of the pebbles. On coördinating the notes which I thus made for the soils and subsoils, I found that they sometimes coincided, and sometimes did not, the coincidence being, however, the rule. I next compared the lithological character of the pebbles of both soil and subsoil with that of the local rocks of the localities from which they were obtained, which I was enabled to do, partly from my own notes, and also, in the case of every specimen, from the observations of the officers of the Geological Survey of Ireland, registered upon the six-inch maps, and which I was allowed to freely consult by Mr. Oldham, formerly Local Director of the Geological Survey of Ireland, and now Director-General of the Geological Survey of India; and by his successor, my friend and colleague, Mr. J. B. Jukes. This comparison showed, in the



clearest manner, that, as a general rule, the pebbles of the superficial deposits were formed from local rocks, and could not, therefore, have been brought from a distance. My intimate acquaintance with the special lithological characters of almost every rock in the district from which the soils were obtained, enabled me often to identify the larger pebbles with a particular rock, and thus to trace the direction of the current. Where the local rocks were very varied, the same variety was observed in the pebbles; where, on the contrary, the same kind of rock prevailed over a large district of country, the pebbles consisted mainly or altogether of that rock.

The geological boundaries of the subjacent rocks rarely coincided with those marking two kinds of soil. Thus, to take two kinds of drift, which present well-marked distinctive qualities, limestone and slate, the former was found to extend from a limestone country into a slate one, and slate *débris* to extend over a limestone country. It was generally found that the extent of this lapping depended upon the physical conformation of the country.

In some districts, especially in Wicklow and Wexford, limestone pebbles were often noticed, especially in the subsoil, where there was not only no local limestone rock, but none nearer than twenty or thirty miles; and even this was often separated by high hills, and the intervening country generally was such as to oppose considerable obstacles to the transportation of anything but the finest silt. The occurrence of limestone in these localities is easily understood, from the fact already mentioned, that considerable masses of limestone drift are found in the low parts of Wicklow and Wexford, as the probable relics of a former covering of local limestone rocks; so that, admitting this explanation to be correct, it would appear that the superficial deposits from which the soils and subsoils referred to, were derived, must have been formed, if not of the immediately subjacent rock, at least of the rocks of the surrounding districts.

Out of several hundred observations of the lithological character of the pebbles of the soils and subsoils of the different counties above mentioned, I have selected those referring to a district consisting of the whole of the county of Kildare and the part of the county of Wicklow comprised by the western slopes of the Wicklow range of mountains, and a small isolated district in the north of the county, enclosed amidst granite, slate, and quartz rocks. This district is very varied, both as regards the lithological character of the rocks, and the physical conformation of the country, and consequently affords an excellent field for studying the question of the superficial accumulations, both

from a geological and agricultural point of view. The annexed sheets contain the results of my observations, arranged in a tabular form. I have likewise added the proportion of pebbles and silt in the specimen examined. It is scarcely necessary to observe, that these numbers can, at most, indicate that the soil is silty or gravelly, as the proportions may be reversed within a few yards. Generally speaking, however, the proportion of pebbles in a large sample of soil, enables one to form an idea as to whether the soil is composed of fine clay with few pebbles, or gravel with little silt. The constituent of a soil which can be most readily and accurately determined, is carbonate of lime, and it is also one of those which indicates, by its variation, marked changes in the constitution of a soil. I have therefore added the per-centage of that constituent in the silt of both soil and subsoil. Although the chief value of these tables is their suggestiveness, and not their furnishing positive data, I think it will, nevertheless, be useful to give such reference as to the exact locality as will enable those who are sufficiently interested in the matter, to study their relations by means of a map. The letters Sh, and the number following, refer to the numbered oblongs which are formed on the Ordnance index maps of the different counties of Ireland, and to the corresponding sheets of the maps made on the scale of six inches to the mile. Each oblong represents a district of country six miles long, and four miles broad. If each sheet be divided into four equal parts, we may call the upper left hand quarter-sheet the north-west quarter-sheet; the lower left hand one the south-west; the upper right hand quarter the north-east, and the lower right hand quarter the south-east; the letters N.W., S.E., etc., placed after the number of the sheet, indicate the particular quarter-sheet in which the townland or part of a townland from which the specimen was taken is situated. In order to enable the reader to compare the soils in one sheet with those of the neighbouring ones, I have indicated under the head "general observations", the sheets which bound the sheet referred to on the N., S., E., and W. Thus, under Sh. 8, Wicklow is put N., Dublin, S., 13, E., sea, W., 7. It will be very easy to find from these references the quarter-sheets which bound any particular one.

The specimens of soil upon which these observations were made were far too small to render the determination of the relative proportion of each kind of pebbles, or their relative size, of any value. Such experiments could only be made on the spot, and to be of any use, at least, one cubic foot should be used. But, even without these data, an attentive study of these tables

fully bears out all that has been said upon the subject of the transportation and deposition of detritus. From a geological point of view, these tables are of very great interest, for they show that the drift is the result of local denudation, and though it has suffered displacement, it is not more than would have taken place upon the supposition of its having been deposited upon the bottom and shores of a shallow sea, studded with islands, in which tides and currents flowed with no greater relative force than now. The almost universal occurrence of brown and gray grits and shales, and occasionally of fragments of coal, which I have found still more abundantly in the subsoils of the county of Dublin, appears to prove that the whole of this kind of drift is the *débris* of coal measure beds which formerly spread over the counties of Dublin and Kildare, etc. I have already mentioned the similar explanation which has been given to account for the occurrence of limestone drift in the slate districts of Wicklow. I mention this hypothesis of the denudation of extensive tracts of coal measures, not merely because the study of the annexed tables appears to support it by a new kind of evidence, but also because it shows how investigations of this kind might be employed in connection with the important subject of denudation.

A comparison of the numbers representing the per-centage of carbonate of lime in the silt, shows that great variations may take place in its composition, without a corresponding variation in the lithological character of the pebbles always accompanying it, and this even in the case of the soil and subsoil of the same spot. The character of the pebbles does not consequently always indicate that of the silt, although generally it does so. This also necessarily follows from the nature of the phenomena of the transport and deposition of detritus. Every complete description of a soil must consequently include not only the lithological character of the pebbles, but also of the silt. The latter can, however, be only ascertained by chemical analysis, and this brings me to the second part of my subject, which, however, I purpose on this occasion to treat of very briefly.

#### §. 10.

What is the precise signification of this term, chemical analysis, in the present case? It is necessary to discuss this matter before proceeding a step further. To some chemical analysis is a means; to others it is the sole end. The former use analytic processes guided by and subordinate to definite ideas; the latter subject bodies to analytic processes, as if the process was the primary object of importance in an investigation, and the nature of the substance operated upon the secondary one. The rapid deve-



lopment of analytic chemistry within the last thirty years has so improved and simplified the processes, that any one may now learn, in a comparatively short time, the nature of the methods employed in analysis. I say advisedly, the nature rather than the use, a distinction which it would be well if chemists kept more in view than they sometimes do. The objects for which bodies may be analysed are as various as the processes that may be adopted. A homogeneous body of definite composition may be analysed for one or all of the following purposes: 1. to know the nature of its simple or proximate constituents; 2. to determine in what state of combination they exist; 3. to ascertain the exact ratio in which they are combined. The results obtained in either case, if otherwise trustworthy, would have a positive value as chemical constants. But if, instead of a definite homogeneous body, we determine the nature and proportion of the several constituents in variable mixtures, it is obvious that the results obtained will not have the same value. There are certain mixtures, however, which present a more or less constant composition, within certain limits. By analysing a great many samples of such mixtures, formed under various circumstances, and studying carefully all the modifying causes, we may determine the limits of the variation of composition, and, perhaps, ultimately, learn the true nature of the causes themselves. A single analysis could here serve no purpose; it is only a long and careful study of all the phenomena, joined with repeated analyses, that could possibly be useful to science.

In physiology, and, consequently, in agriculture, which is based upon the former, this fundamental distinction has never been as fully recognized as it ought to have been. The most heterogeneous substances have been analysed, and often without the slightest reference to the circumstances under which they were produced, and hypotheses reared upon the results, as if the substances examined were definite compounds. The distinction has, indeed, been so far forgotten, that the eminent physiologist Valentin actually proposed a formula for the substance of the lungs! Although I believe no one has yet proposed a formula for a turnip, or a mangel wurtzel, the theories regarding the action of manures upon the growth of plants, which have been built upon a single imperfect analysis of a turnip or a mangel wurtzel, are very numerous, and are, if possible, still more illogical.

From all that has been said in the foregoing pages, and especially from the observations recorded in the annexed tables, I think it must be evident that such a thing as an average sample of soil is an impossibility, unless we reduced the soil of an entire acre to the condition of fine powder, and then it would not repre-

sent the soil any longer. Comparative quantitative analyses of soils are, consequently, of no use, and may prove an injury, by assisting to inculcate erroneous views. But, even if the analyses of soils could confer benefits on agriculture, the majority of those hitherto made would have proved useless, in consequence of imperfections in the processes, some of which I will point out, because they will confirm what I said above, that a knowledge of the nature of chemical analysis does not always enable persons to use it aright as an instrument of research.

Passing over the great difficulty or rather the impossibility of getting an average sample of soil, in reference to which so much has been already said, I will examine some sources of error which affect more or less most published analyses of soils, and, above all, render comparisons between them wholly valueless. In the present paper I purpose confining myself exclusively to such sources of error as are connected with the geological question of the character of detritus as influenced by its manner of deposition, or at all events with the lithological and mineralogical character of the materials of which soils are composed. The chief sources of error which come within this category are: 1. not considering the pebbles and fragments of a rock in a soil as an active chemical part of it, and consequently using the silt exclusively for the purposes of analysis; 2. the difficulty of determining the hydrated water; 3. incorrect estimation of the quantity of silica existing in compounds decomposable by acids; 4. not taking into account the influence of temperature, at which the treatment of soils with acid takes place, the strength of the acid used, and the duration of the action; 5. the difficulty of determining the proportion of a soil which may be reckoned as performing the mechanical function of sand.

### §. 11.

Mechanically considered, all soils consist of fragments of rocks of various degrees of size, from that of large blocks of stone to the most comminuted mud. Chemically considered, it consists of variable mixtures of several definite compounds more or less altered, constituting the minerals forming the rocks broken up. In analysing soils, chemists usually sift them in order to separate the pebbles. This division is quite arbitrary, because, in the first place, wire gauze having the same sized meshes, may not be used, and even, if used, the table given at p. 189 shows that the particles which pass through the same sized meshes differ very considerably in size. If a soil be made up of the *débris* of many rocks, the relative proportions of each rock which would occur in a succession of groups of fragments of the same size, would be more or

less different, as must be evident from what has been said on the subject of the transportation and deposition of detritus: hence the slightest difference in the size of the meshes of the sieve would alter the relative proportion of the minerals in the sifted part. This difference would not, perhaps, be sensible in many soils, but in those of complex composition I have satisfied myself that it might become a source of considerable error.

Next arises the question, what are we to consider as pebbles, which ought to be removed; or, ought we to remove any pebbles at all. The answers to these questions will depend upon whether the pebbles or stones in a soil take any part in its functions. With the view of determining this point, I ascertained the proportion of pebbles and coarse sand, composed of distinct fragments of rock in twenty-five specimens of marls, clays, and gravels, taken, with the exception of two, from depths varying from three to ten feet below the surface, and, therefore, to a certain extent beyond the direct influence of air and carbonic acid. I boiled the whole of the pebbles with hydrochloric acid, of the strength which I usually used in soil analysis. Having first carefully washed them with water to remove any traces of silt adhering to them, I then determined the amount of carbonate of lime, and of peroxide of iron and alumina, dissolved by the acid. The former represented the quantity of limestone pebbles, or of calcareous grits and shales present; the alumina and oxide of iron served as an indication of the quantity of silicates decomposed by the acid. The following table comprises the results:—

No.	Lithological character of Pebbles.	Per-cent- age of pebbles in clay.	Per-cent- age of car- bonate of lime in pebbles.	Per-cent- age of $\text{Al}_2\text{O}_3 +$ $\text{Fe}_2\text{O}_3$ dissolved.
1	Mica slate, quartz sand, mica, felspar . . . . .	7.0	4.8	4.2
2	Mica slate and quartz sand . . . . .	9.0	0.2	7.7
3	Clay slate, fragments of granite and quartz sand . . . . .	7.0	2.1	13.9
4	Quartz sand, mica slate . . . . .		0.1	0.8
5	Quartz sand, pebbles of greenstone and felspar . . . . .	6.0	0.4	14.1
6	Limestone, mica slate, greenstone, felspathic trap, chert, and quartz . . . . .	59.0	17.6	4.5
7	Limestone and clay slate, spangles of mica . . . . .	2.5	18.3	8.6
8	Clay slate (some altered), felspathic trap . . . . .	7.0	4.7	9.8
9	Altered clay slate, a few pebbles of felspathic trap, quartz . . . . .	27.0	7.0	2.7
10	Quartz sand, clay slate, limestone, spangles of mica . . . . .	4.0	13.5	5.4
11	Granitic sand, altered slate, limestone . . . . .	3.0	22.7	9.6
12	Quartz sand, mica slate, blue and gray clay slate, felspathic trap . . . . .	24.0	4.8	14.5
13	Quartz sand, mica slate, soft clay slate, one or two fragments of granite, limestone . . . . .	16.0	20.0	3.0



No.	Lithological character of Pebbles.	Per-cent- age of pebbles in clay.	Per-cent- age of car- bonate of lime in pebbles.	Per-cent- age of $\text{Al}_2\text{O}_3 + \text{Fe}_2\text{O}_3$ dissolved.
14	Blue and green slates and grits, mica slate, quartz	85.0	0.1	3.0
15	Quartz, slate, and earthy limestone sand, green and red grits, felspathic trap	15.0	14.0	6.0
16	Quartz, and limestone sand, fragments of slates and grits	13.0	12.0	3.5
17	Quartz sand, pebbles of chert-like grits, mica slate, green and brown grits	13.0	0.1	3.5
18	Clay slate, quartz sand, green grits, fragments of greenstone.	19.0	3.2	1.8
19	Quartz sand, yellowish brown, gray and black grits and slates	2.0	1.1	0.8
20	Quartz sand, mica, fragments of felspar, a few pebbles of greenish grits	47.0	4.3	2.6
21	Quartz sand, slate d�bris, a few gray grit pebbles	4.0	12.2	4.7
22	<i>Soil</i> :—Brown and green slates and grits, a few fragments of decomposing granite, and of crystalline brown hematite	40.0	0.1	2.7
	<i>Subsoil</i> :—Slate d�bris, gray slates and grits, a few fragments of granite	38.0	2.0	4.0
23	Quartz sand, a few pebbles of gray grits and mica slate	12.0	0.3	0.7
24	Quartz, fragments of gray slates and grits	10.0	0.4	4.1
25	Green and blue slates, and grits (about half), quaternary or greenstone granite (about one-sixth), quartz sand, and a few mica spangles	55.0	0.2	3.1

This table proves, in the clearest manner, that the pebbles of a soil constitute an active chemical as well as mechanical element in them; in some cases yielding to acids as much soluble matter as the silt itself—in one or two instances, indeed, as much as the richest alluvial mud. To the experiments recorded in the preceding table, I may add one made with alluvial sand and gravel from the bed of a river. This gravelly sand, free from silt, contained 1.60 per cent. of hydrated water, 1.19 of alumina, 2.78 of sesquioxide of iron, and 8.94 of carbonate of lime. Considerable variation would, no doubt, be observed in the amount of soluble matter which different gravels would yield, according to their lithological character, and whether they were in a state of decomposition. This variation would not, however, affect the fact that the pebbles are an essential part of the soil, and that all experiments made to determine the value of a soil should be made upon unsifted soil.

### §. 12.

We have next to consider the source of error which arises from the difficulty of determining the amount of water and organic

matter in soils. A sample of air-dried soil contains water in two distinct conditions, as hygroscopic water and as hydrated water. The quantity of the former depends, among other causes, upon the mechanical aggregation of the soil and upon the amount of aqueous vapour in the atmosphere; the quantity of the latter represents that of the hydrated minerals in the soil. As yet there does not seem to be any means of accurately determining the relative proportions of each. The quantity of hygroscopic water is often considerable, and certainly could not be neglected. If we put a sample of soil over sulphuric acid, or in a water bath heated to 100° Cent. (212° Fahr.), the hygroscopic water is driven off, but part of the hydrated water is also lost,—the amount of the latter depending a good deal upon the length of time it is subjected to the drying process. But, even if we expose two samples of the same soil to the temperature of boiling water for an equal amount of time, one being, however, exposed to a current of air, and the other not, a considerable difference will be found in the amount of water lost. M. Damour has shown<sup>6</sup> that the whole of the zeolites, with the single exception of analcime, lose considerable quantities of water, and sometimes the whole of their hydrated water, when exposed to a perfectly dry atmosphere, or to temperatures comprised between 40° Cent. (104° Fahr.) and incipient redness. If this be the case with crystallized substances, how much more so must it be with hydrated substances in an amorphous pulverized form.

If, on one side, the hydrated water cannot be distinguished from the hygroscopic, so, on the other, it seems almost impossible to distinguish it from the water produced by the distillation of organic substances. The latter bodies begin to decompose at a temperature far below that usually considered necessary to drive off the whole of the hydrated water. The extent to which this difficulty regarding the determination of the water may influence the results of an analysis, is, of course, variable; but, though it may not always sensibly affect the per-centage of those constituents, which, like phosphoric acid, potash, etc., are present only in small quantities, it affects the general accuracy of the whole analysis, by preventing us from applying that kind of verification to our results, which is afforded by the sum of the constituents found being equal to the quantity of soil operated upon. But, besides this disadvantage, there is the still more important one, that it leaves us without any clue by which to determine the proportion of hydrated minerals in the soil.

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<sup>6</sup> *Compt. rend.*, t. xlv., p. 975.

## §. 13.

The next source of error which affects the accuracy of the results of soil analyses, is one which belongs rather to the method hitherto followed, than to the inherent difficulties of soil analysis generally. If we examine the most recent and elaborate analyses of soils, we shall find the amount of soluble silica generally set down either as a trace, or as amounting to from about 1 to  $\frac{1}{30}$  of a per cent., and yet the amount of alumina may be set down at from 2 to 7 per cent., and the peroxide of iron at about the same, exclusive of the protoxide bases. In what condition does this alumina exist in soils? If as a silicate, where does the silica which was in combination with it appear among the results of the analyses?

The minerals which contribute most to the formation of soils, are: orthoclase or potash felspar, albite or soda felspar, labradorite or lime felspar, hornblende, chlorite, talc, and the hydrated minerals, clay, and some zeolites. If, for the purpose of giving a clear conception of the ratio of the silica to the bases in these minerals, we adopt the simplest formulæ which have yet been proposed to express their average typical composition, we shall have for:

Orthoclase . .	$\text{KO}, 3 \text{ Si O}_2 + \text{Al}_2 \text{ O}_3, 3 \text{ Si O}_2$
Albite . . . .	$\text{Na } 3 \text{ Si O}_2 + \text{Al}_2 \text{ O}_3, 3 \text{ Si O}_2$
Labradorite	$\text{Na O}, \text{Si O}_2 + 3 (\text{Ca O}, \text{Si O}_2) + 4 (\text{Al}_2 \text{ O}_3, 2 \text{ Si O}_2)$
Hornblende .	$3 (\text{M O}^7 \text{ Si O}_2) + 2 \text{ M O}, 3 \text{ Si O}_2$
Chlorite . . .	$4 (\text{Mg O}, \text{Si O}_2) + \text{Al}_2 \text{ O}_3, \text{Si O}_2 + 3 \text{ HO}.$
Talc . . . . .	$2 (\text{Mg O}, 2 \text{ Si O}_2) + (2 \text{ Mg O}, 3 \text{ Si O}_2)$
Clay . . . . .	$\text{Al}_2 \text{ O}_3, 2 \text{ Si O}_2 + 2 \text{ HO}.$

To these we may add as examples the zeolites:

Thomsonite .	$\text{Na O}, \text{Si O}_2 + 3 (\text{Ca O}, \text{Si O}_2 + 4 (\text{Al}_2 \text{ O}_3, 2 \text{ Si O}_2) + 8 \text{ HO}$
Pinite . . . .	$(\text{KO}, \text{Fe O}) \text{Si O}_2 + \text{Al}_2 \text{ O}_3, 2 \text{ Si O}_2 + \text{HO}$
Sodalite . . .	$\text{Na O}, \text{Si O}_2 + \text{Al}_2 \text{ O}_3, 2 \text{ Si O}_2 + 2 \text{ HO}.$

A mere inspection of these formulæ shows us that if the alumina be obtained from their decomposition, the proportion of silica given in the majority of the statements of the results of soil analysis must be erroneous. If not obtained from these minerals, or the few others which may contribute to form soils, it must have been obtained from some substance or substances formed by their decay. But the decay of minerals does not diminish the proportion of silica left in the decomposed mass, but on the contrary increases it. The first action of decay is to remove the protoxide bases, such as potash, soda, lime, etc., partly, no doubt, in the form of silicates, as is proved by the existence of that substance in spring water, but also as carbonates, sulphates, and chlorides. In the formation of the latter the silica

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<sup>7</sup> M O = MgO, CaO, FeO, MnO.



with which the bases were previously combined is left behind, and either enters into new combinations, or remains uncombined. Decomposed minerals cannot, therefore, give alumina, without, at the same time, giving a quantity of soluble silica, which must in all cases be actually greater than that of the alumina.

If the quantity of soluble silica, as generally given in books, were correct, free alumina should be found in soils, and ought to be dissolved out by a weak solution of caustic potash. On treating some marly clays with a very dilute solution of pure caustic potash, I obtained, not alumina, but a silicate of alumina, as the following results will show:—

	Si O <sub>2</sub> per cent.	Al <sub>2</sub> O <sub>3</sub> per cent.	Rates of number of equivalents of acid to base.
1 . . . . .	0.7906	0.3617	3.62 : 1
2 . . . . .	0.8286	0.4552	3.02 : 1
3 . . . . .	0.6421	0.3417	3.11 : 1
4 . . . . .	0.6022	0.3493	2.86 : 1
5 . . . . .	0.5076	0.2825	2.98 : 1

These ratios are sensibly the same, and may be represented by the formula  $Al_2O_3, 3 Si O_2$ . I have not yet ascertained whether the same silicate would be dissolved out of all soils, or whether those obtained from different minerals give a different one. This silicate I consider to be, perhaps, in part or in whole, a product of decomposition resulting from the action of the potash. If we boil finely levigated pinite or sodalite with potash, we ought to get a silicate of the same composition.

I think, then, that the quantity of soluble silica usually represented in the published results of soil analyses is altogether wrong, as even the quantity which may be dissolved out by potash is far greater than that stated in nine-tenths of those published. I have now to point out what I believe to be the cause of the anomaly, and this brings me to the fourth source of error in soil analysis.

#### §. 14.

The action of acids upon silicates varies very much. Some of the hydrated ones are decomposed in the cold by strong hydrochloric acid, while several of the anhydrous ones can only be decomposed by long boiling with oil of vitriol. It is probable that no silicate will withstand the action of acids if it be continued long enough. It would, therefore, appear that if a mixture of fragments of different silicates be treated with acid, the amount of decomposition of each, and therefore of the whole mass, will depend chiefly upon the following conditions: 1. na-

ture and strength of acid; 2. state of aggregation of the different minerals; 3. temperature at which the reaction takes place; 4. duration of action; and 5. and probably also in some degree upon the relative masses of acid and minerals employed. A soil is such a mixture of minerals, each of which exists in different states of aggregation, but the proportion of each in any one state being different, each mineral is differently acted upon by acids. Chemists in analyzing soils do not use the same strength of acid, or the same relative proportions of acid and minerals; they do not subject them to the action of acids for the same amount of time, and the reaction does not always take place at the same temperature. It therefore seems impossible that any two analyses of the same soil, as they have hitherto been made, could agree, whether made by the same chemist or by different ones. Of course if the object of an analysis was simply to determine the *total* quantity of each constituent, irrespective of the condition in which it existed, all analyses made of the same sample ought to agree, because the modifying influences just stated would not affect the total quantity, but only the amount which may be dissolved by acids. Such analyses would, however, be of no use for agriculture, or indeed for any other purposes. The difference, then, which may arise from the influence of the various modifying circumstances above stated, between the results of two analyses of the same soil, is frequently as great as that which may appear to exist between the most barren and the most fertile soils. Can it be wondered at, then, that soil analyses have done nothing for practical agriculture?

When a silicate readily decomposes in the cold, the silica is separated in a hydrated or gelatinous condition. If this gelatinous mass be mixed with a large quantity of water, some of it appears to dissolve. If it be boiled with water, the mass gradually becomes opaque and granular, in consequence of the loss of a large part of its hydrated water. If a mineral can only be decomposed by long boiling with hydrochloric acid, it is clear the silica will be separated in the granular form, and very little, or even none, may dissolve. In boiling oil of vitriol, hydrated silica loses all its water, and consequently the silica separated by the action of that acid upon silicates, is anhydrous. Here is evidently the key to the error regarding the soluble silica in soil analyses. The greater part of the silica of the decomposed silicates is separated in the granular state, and has hitherto been estimated along with the sand and undecomposed silicates. If, however, the insoluble residue left after boiling a soil with acid, be digested for a short time with a weak solution of caustic potash, the whole of the silica separated by the acid will be dis-

solved out, and may be estimated. The only part of the silica which has hitherto been estimated as soluble silica, is what remains in solution in the acid liquor with which the soil was boiled, the amount of which, however, depends upon the strength of the acid, the temperature at which the reaction takes place, and, above all, upon the duration of the digestion at a high temperature. It has been frequently stated that this silica represents that which existed in the hydrated silicates, an opinion which involves the existence of allotropic states of silica capable of entering as such into combination. Whether this be so or not, there can be no doubt that the silica of acid solutions does not represent the silica of hydrated silicates, if for no other reason than that the quantity of hydrated water in a soil is often thirty times more than the amount of the silica left in the acid solutions. Again, if this were so, we should either admit that pure clay was a mixture of different compounds, as only a very small part of its hydrated silica dissolves, or that when hydrated silicates are acted upon by acids, only a part of the silica dissolves, an explanation which of course overturns the whole argument. The chief objection to this view is, however, that the amount of soluble silica varies in every analysis. The following table contains a few determinations which will show the relative proportion in 100 parts between the silica which sometimes remains in solution, and that which forms part of the insoluble residue:—

	Silica in the acid solution.	Soluble silica in the insoluble residue.
Blue marly clay . . . . .	0.09	5.97
Rich marl . . . . .	0.09	4.83
Calcareous subsoil . . . . .	0.04	2.03
Brick clay . . . . .	0.11	3.80
Sandy well-tilled soil . . . . .	0.13	3.19
White-coloured subsoil . . . . .	0.11	5.40
Yellow do. . . . .	0.15	5.76

From this it will be seen that the amount of soluble silica really separated by the action of acids upon soils, is in apparent proportion to the amount of bases dissolved out. I have found in some soils as much as twenty per cent. of soluble silica, or, in other words, fully thirty per cent. of the soil consisted of silicates decomposable by moderately strong hydrochloric acid. The ratio between the bases dissolved and the silica separated, must, however, depend a good deal upon the nature of the silicates of which the soil is made up. The following table will give an idea of the variation. I consider these numbers rather as an approximation, however, than as giving absolute data:—



	Number of equivalents of $\text{SiO}_2$ to 1 of $\text{Al}_2\text{O}_3$	Number of equivalents of $\text{SiO}_2$ to 1 of $\text{M}_2\text{O}_3 (= \text{Al}_2\text{O}_3 + \text{Fe}_2\text{O}_3)$ .
Soil from more or less altered slate, .	5.5	3.1
Subsoil " " " .	5.9	3.1
Soil from coal measure shales .	4.7	2.7
Subsoil " " " .	5.3	3.1
Soil from felsphathic trap, greenstone } porphyry, and slate .	5.3	2.4
Subsoil from the same, but green- } stone and trap more predominant }	3.7	1.17
Soil from granite, limestone, and coal } measure-shale drift .	2.6	1.16
Subsoil from the same, the granite, } however, being more developed } than in the soil .	3.1	1.19
Soil from limestone, and Silurian grits } and slates . . . .	6.8	1.37
Subsoil . . . . .	4.6	1 25

## §. 15.

The fifth and last source of error in soil analysis, which I shall notice in this paper, is the difficulty of determining the proportion between the clay and sand. As the physical properties of soils depend, in a great measure, upon this proportion, its determination is a problem of great importance. The chief difficulty of the problem is, however, involved in another—what, from the point of view of the soil, are sand and clay? The word sand is usually understood to mean distinct grains, or minute fragments, of rock; clay is a definite amorphous hydrated silicate of alumina in an extremely fine state of division, in which, however, part of the latter constituent may be replaced by sesquioxide of iron. The difference between them is, therefore, not one of fineness of division merely; flint may be ground so fine that, when suspended in water, it will take as long to deposit as clay; yet it could not perform the chemical functions of clay, and, perhaps, not its most important physical ones either. In the ordinary process of determining the amount of sand and clay in a soil, the only circumstance taken into account is the relative degree of fineness of the material, so that true clay, finely ground quartz, and other undecomposed minerals, would be estimated together under the name of clay. Again, the degree of fineness which marks the boundary between sand and clay is quite arbitrary, and, consequently, the proportion of the two materials greatly depends upon the depth of water in which the separation is effected, and the force of the current which carries off the clay, and even upon a more or less perfect uniformity of manipulation. There is, indeed, no portion of the subject of soil analysis to which the observations on the deposit of detritus in water so fully apply as to the determination of clay and sand, and, consequently, we may safely

state that the proportion of clay and sand, as determined even by the best processes now in use, cannot afford us a means of classifying soils according to their comparative values.

While on the subject of the separation of clay and sand, I may observe that the word clay, as usually applied, is liable to produce erroneous ideas. True clay is a hydrated silicate of alumina; but the plastic part of many soils has a very complex composition, and we have only to recollect how various are the minerals which contribute to their formation, to be at once convinced that the part of them usually called clay is a very heterogeneous mass of variable composition.

### §. 16.

The connection between the proportion of sand and clay in soils, and the physical properties of the latter, compels me to say something upon this subject in conclusion; the more so since, in consequence of the failure of the attempts which have been made to determine the comparative values of soils by chemical analysis, the study of the physical properties has been more than once proposed as a substitute for the same purpose.

Any one who studies the important experiments of Schübler, on the physical properties of soils, cannot help seeing how much the comparative values of different soils to the husbandman must depend upon such properties as: the firmness and consistency of soils in their dry and in their moist state; their power of absorbing moisture from the atmosphere, and of becoming dry on exposure to dry air; their contraction on drying; their power of containing water; their capacity for becoming warmed by the sun's rays, and of retaining heat when warmed, etc. All these properties depend, however, not only upon the kind of materials of which the soils are made up, and their relative proportions, but, I might almost say, upon their relative positions. The extreme types of soils, stiff clays, sands, loams, peat, may exhibit such marked difference in regard to their properties, as well as to their chemical constitution, as to explain, in a great measure, the cause of their relative fertility; but, in the case of the majority of soils, the variation in their relative value could not lead to any practical result in the present condition of the question; because, as almost every physical property depends upon different circumstances, the slightest variation in the proportion, size, etc., of the mineral constituents would produce a variation in the comparative values assigned to the various physical properties, each of which would not, however, be either affected to the same relative extent, or even in the same direction. Again, the same comparative physical character may be joined with the most dis-

similar chemical composition. At first sight, one would suppose that the capacity of a soil for absorbing water would stand in relation to the amount of sand; the following results appear to show that this is not the case:—

No.	Lithological character of soil.	Proportion of sand in 100 parts.	Quantity of water retained by 100 parts of dry soil.	Specific gravity of soil.
1.	Limestone, grits and shales . . . .	26.39	95.39	2.289
2.	Brown grits and calp débris . . . .	47.32	67.28	2.220
3.	Granitic débris . . . . .	47.43	69.42	2.445
4.	Limestone, quartz sand, etc. . . . .	54.72	55.73	2.455
5.	Limestone, quartz sand . . . . .	54.91	52.87	2.420
6.	Grits and slate, quartz sand . . . .	67.11	92.88	2.400
7.	Ditto . . . . .	67.45	74.85	—

These determinations were made with the greatest possible care; but, for the reasons stated above, the proportion of sand, no matter how carefully determined, must be a variable quantity. Hence, even though the real amount of sand were to stand in direct ratio to the capacity to hold water, which a little reflection would show us could not be the case, the quantities established by direct experiment would, as a rule, exhibit no such definite relation.

The quantity of water absorbed by a soil must depend in a great measure upon its porosity; the slightest alteration in that property must consequently modify its capacity to retain water, etc. If we compress it, it will take up less, exactly as when we squeeze a sponge. The capacity of a sifted soil for absorbing water is not, therefore, the same as the natural; even the cutting out of a portion of soil with a spade modifies, to some extent, the absorptive power, although, perhaps, not to such an extent as to be appreciable in our experiments. While, therefore, the general features of the physical properties of soils may, like their qualitative chemical composition, be advantageously studied in a laboratory, we could not, taking into account the observations in the preceding pages, employ such results with certainty in determining the relative fertility of any two soils.

Soils possess the power of absorbing gases as well as liquids, and of late attention has been drawn to the chemical action which takes place when the water absorbed happens to contain salts in solution. Although the precise nature of the chemical phenomena accompanying absorption is not yet very satisfactorily established, it has been proposed to determine numerically the amount of chemical decomposition which takes place, and to employ the results as a means of determining the comparative value of soils. Apart the objection which at once suggests itself, that we could scarcely be justified in drawing conclusions



as to the comparative fertility of two soils, from the difference which they may exhibit in absorptive or other physical properties, the precise influence of which upon vegetation has not yet been ascertained, the arguments derived from the manner of formation of soils, which I have urged in this paper against the use for the same purpose, of chemical analyses as hitherto made, apply with still greater force against that of the absorptive powers. A short sketch of the history of this branch of the subject will perhaps afford the best confirmation of this opinion which I can give.

Towards the end of the last century Lowitz discovered in vegetable charcoal the remarkable property of removing colouring matters from solutions. It is singular that it was not until the year 1812 that a similar property, but in a much higher degree, was discovered by Figuier in animal charcoal. This property was taken advantage of in decolorizing syrups; and as lime is used in clarifying saccharine juices, whether obtained from the cane or beet, some of it remains in the syrup, but on being passed over bone charcoal, it was found to be wholly, or in great part, removed. Saussure discovered another property in charcoal,—that of absorbing gases in considerable quantity; and further, that all porous bodies possessed it in a greater or lesser degree. Among these he mentions, that damp soil gradually absorbs oxygen, and that when hydrogen was mixed with the oxygen, the soil caused them to unite and form water—a property which Döbereiner subsequently found spongy platinum to possess in so remarkable a degree. No application was made of these capital facts to explain any of the phenomena connected with the soil: they are nevertheless the foundation of the whole subject of its absorptive powers.

In 1848, the Rev. Mr. Huxtable observed that liquid manure, when filtered through some soil became colourless, and lost all smell; an observation which had been previously made respecting peat charcoal by Mr. J. W. Rogers. About the same period Mr. H. S. Thompson found that soil had the power of retaining not only the free ammonia of a solution, but even that existing in salts, such as the chloride, the sulphate, nitrate, etc. Mr. Way followed up these two observations of Huxtable and Thompson in a long series of experiments, in which he endeavoured to obtain numerical values for the absorptive properties. The most important conclusions which he deduced from his researches were: that soils possess the power of absorbing alkaline substances from solution; and further, that they possessed the power of decomposing alkaline salts, retaining the alkalis, and allowing the acids to escape in combination with lime; that this

property did not depend on the organic matter of the soil, but that clay was invariably present, while pure sand did not at all possess it; that the property was due to the presence of a small quantity of some chemical substance, which he considered to be a silicate of alumina—that is, that a double silicate of alumina was formed with ammonia, potash, or soda. These double silicates he considered to be but sparingly soluble in water, which, however, acted upon them. He also concluded that plants do not absorb manures from a solution; that the form in which mineral and ammoniacal salts are applied is indifferent, because the soil possesses the property of transforming them into a special form under which they are presented to plants. Mr. Way also found that clay possesses antiseptic properties, as urine filtered through it did not undergo putrid fermentation, and, consequently, that plants may have the power of absorbing other nitrogenous bodies besides ammonia and nitric acid.

Messrs. Henneberg and F. Stohmann repeated the experiment of Way, and found, as he did, that the absorption was perfectly the same, whether it took place in a solution of ammonia or of an ammoniacal salt, provided the quantity of ammonia was the same in both. They also confirmed Way's observation that the absorption diminished with the strength of the solution employed. The numerical values found by Henneberg and Stohmann were so regular that Boedeker proposed mathematical formulæ to determine the amount of absorption, the strength of the solution and the proportion of liquid and soil used being given. The great importance of the subject led Liebig to turn his attention to it.<sup>8</sup> Confining his experiments to arable soils, he found that, whether rich or poor in alumina and carbonate of lime, they possessed very nearly the same absorptive powers. He also found, as Way did, that this property did not manifest itself with the same intensity on all bases; thus ammonia is more completely absorbed than potash, and the latter than soda. Silicate of potash acts like all the other salts of that base; the base is absorbed, a great part of the silica being at the same time retained. Liebig comes to the same conclusion as Way, that the manures are presented to plants under a special form, and that in consequence of the insolubility of the new compound formed, the roots must possess a special force which permits them to choose and assimilate the substances which they cannot draw from a solution. He, however, thinks that aquatic plants, such as the *Lemna trisulca*, the roots of which are not in contact with the soil, must absorb their food from solutions.

Very recently, M. Brustlein, under the direction of M. Bous-

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<sup>8</sup> Annal. d. chem. u. Pharm., cv. p. 109.

singault,<sup>9</sup> has made a series of experiments upon the same subject, from which he draws the following conclusions: that the property of arable soils, of absorbing ammonia, depends almost exclusively on the physical constitution of the mineral substances, and even of the organic matters of which they are formed. The existence of a carbonate in the soil is indispensable, in order that the soil may decompose an ammoniacal salt. The decomposition is strictly arrested at the quantity of salt, the ammonia of which is fixed; the force which determines the absorption is sufficiently powerful to provoke this double decomposition. The facility with which ammoniacal salts are decomposed in the presence of carbonate of lime is well known, and M. Boussingault<sup>10</sup> has shown, that if a fixed ammoniacal salt be mingled with moist carbonate of lime, and allowed to dry slowly, the whole of the ammonia will disappear, as the result of the desiccation, in the form of carbonate. The same thing takes place when a solution of chloride of ammonium is boiled with carbonate of lime. M. Brustlein has confirmed Mr. Way's observation, that soils absorb a great deal of ammonia when exposed to an atmosphere containing it. If air containing a very small quantity of ammonia, be filtered through a long column of clay, almost the whole of the ammonia will be absorbed by the clay, but it loses it again in great part under the influence of a current of moist air. Soil charged with ammonia and exposed to the air in a moistened state, had a part of the ammonia oxidized with nitric acid. So long as the soil remains dry, any ammonia which it may have absorbed is firmly retained; but the moment water intervenes, it provokes, by its evaporation, the dissipation of the ammonia. Of the completely physical character of the absorptive power, we have a striking proof in the fact, that animal charcoal, washed with hydrochloric acid, absorbs three times as much ammonia as a quantity of unwashed charcoal containing an equal amount of carbon. Mould and turf likewise possess a high degree of absorptive power, but have no faculty of decomposing the fixed salts; but there is in both cases a very sensible destruction of ammonia. This result accords with some experiments which I commenced about three years ago, in connection with the resins of turf, the results of which I hope to be soon able to communicate. By impregnating charcoal with carbonate of lime, which was done by saturating the charcoal with chloride of calcium, and precipitating carbonate of lime by means of an alkaline carbonate, he was able to give to it the power of decomposing salts of ammonia; thus confirming the conclusion stated

<sup>9</sup> *Journal d'Agriculture Pratique*, t. ii., Octobre 20, 1859, p. 320.

<sup>10</sup> *Economie Rurale*, 2me Ed., t. ii., p. 104.



above, that soils owed their power of decomposing those salts entirely to the presence of carbonate of lime.

Some curious experiments of Chevreul upon what he termed capillary affinity, and which have been, so far as I know, hitherto overlooked, appear to lend support to the opinion, that the absorptive power of soils is a purely physical phenomenon, and that a similar power belongs to all porous surfaces. He found, for example, that cotton, plunged into a solution of alum of a given strength, took up the alum and water in a different proportion from that in which they existed in the solution, the alum being relatively less, and the water more, than in the solution. The reverse is the case, if, for a solution of alum, we substitute one of corrosive sublimate. He also found that well washed river sand put into lime water, removed, after a considerable time, a part of the lime. My observation upon the existence in river sand and pebbles of a slight layer of hydrated silicates, gives the key, however, to the latter phenomenon, which is evidently a purely chemical one.

If the arguments and observations which I have brought forward in the foregoing pages be correct, I think I am entitled to draw the following conclusions:—1. That while the total amount of any constituent may be determined with considerable accuracy in a given sample of soil, we know as yet of no means for determining accurately under how many conditions it may exist, or in which of them it exerts the greatest, or indeed any influence upon vegetation. 2. That it is not by making numerous determinations of the constituents of soils that we can hope to arrive at useful results, but by careful researches upon a few soils, to determine the states in which each constituent exists, and the circumstances which modify their properties. 3. That, even if we knew the conditions upon which the fertility of soils depended, no deduction could be drawn from the comparison of the chemical constitution, absorptive powers, or the physical properties regarding their relative fertility, because from the nature of the materials of which soils are composed, and the influences under which, in the majority of cases, they were brought together, an average sample of the soil of a field cannot possibly be obtained. The legitimate conclusion from this is, that all the deductions which have been drawn relative to the action of manures upon soils, cannot be depended upon, and that, if upon no other ground, the commercial analysis of soils is a mistake. 4. That an accurate lithological survey of the superficial deposits of a country would be of great advantage to agriculture, and would form the safest basis which could be laid down for working out the great problem of the relations of the soil to vegetation.

the rocks upon which they rest.

<p>cal character of the of the District.</p>	<p>Reference to Sheets bounding that of locality.</p>
<p>at rock: felspathic ; higher ground th—the ground falling from the of the specimen avel mound.</p>	<p>N. Dublin 24; S. 5; W. Kildare 20: E. 2.</p>
<p>ks: gray and quartz rock, slaty beds. Lo- specimen on a round <math>\frac{1}{2}</math> mile to nd on the oppo- of the river to he last specimen. up the river, escends from the range—micace- d. The whole covered with</p>	
<p>rock: quartz- hingle debris of In the immediate urhood brown a few hundred to the S.S.E. a brown slaty arried for hones.</p>	

Lithological character of the Rocks of the District.	Reference to Sheets bounding that of locality.
<p>Subjacent rock: not visible, but belongs to the Cambro-Silurian series. In the immediate neighbourhood there is a considerable deposit of sandy gravel, limestone gravel, containing calcareous grits, and red conglomerate. Boulders.</p>	<p>N. 32; S. 38; W. 35; E. Wicklow, 20.</p>
<p>Local rocks: gray and greenish gray grits and slates. In the neighbourhood sandy clay, containing limestone pebbles. The locality of the specimen forms a kind of island in the drift where the slates are exposed.</p>	
<p>Local rocks: blackish gray, brown silty slates; brown and greenish brown soft grits.</p>	
<p>About <math>\frac{1}{4}</math> of a mile from the junction of the slate and limestone, in the neighbourhood of which there occur coarse unstratified gravel deposits, containing limestone, local grits, red and white sandstone, clay, etc.</p>	
<p>Subjacent rock: not exposed, gravel beds all around, especially to the N. and S.</p>	
<p>Subjacent rock: limestone covered with drift; considerable deposits of gravel to the W. and N. The locality is about <math>1\frac{1}{4}</math> miles W. of the slate district.</p>	<p>N. 35; S. 39; W. Q. Co.; E. 38.</p>
<p>Subjacent rock: limestone, somewhat more than 2 miles W. of the slate district. Considerable deposits of gravel to the</p>	



ART. IX.—*On the Question of Morbid Types and Species.* By  
ROBERT D. LYONS, M.D.

**M**EDICINE, in its present complexity and extension, may be considered to bear the same relation to its early prototype, the "Art of Healing", that the highly elaborated art of navigation, concerned, as it now is, with the most extended and profound researches, as well abstract as applied, in astronomy, meteorology, and hydrology, does to the imperfect knowledge of the early mariner.

From the necessities of the case, ever growing and assuming more expanded proportions, medicine, like navigation, has opened up regions of thought, and led the way to new domains of knowledge, of which no conception could have been formed in the most exalted imaginings and anticipations of those whom instinct, accident, and (subsequently) experience directed in the "culling of simples", or the primitive efforts for the repair of injury. In this complexity of sciences, to which medicine has given birth, lies one great cause of its own imperfections. From medicine, in its requirements for the service of man, have grown, not alone such branches of science of more immediate and even still recognizable kindred with it, as anatomy, physiology, and pathology, but others, which, like chemistry, botany, zoology, comparative anatomy, and palæontology, in their extended significance in the present day, bear but little about them to show evidences of their origin from an art which they now overshadow in their world-recognized importance, as much as they were themselves at one time wholly absorbed by and included within it. With the advance of each of the sciences that sprang from medicine as from a parent stem, the healing art itself acquired new developments, and a special impress was left upon it by the labours of the anatomist, the botanist, the chemist, or the so-called natural philosopher. So much has this been the case, that the history of medicine will be found divisible into distinct periods, each marked with special characters derived from the dominant science of the time.

It is not matter for surprise that, under such powerful successive influences, and those not always harmonious or reconcilable with each other, medicine, concerned as a science with the investigation of the essential nature and seat of the diseases to which the human frame is liable, and directly called on to intervene as an art for their alleviation or cure, should have undergone remarkable disturbances, if not revolutions, in many of its most essential fundamental doctrines and practices. That material changes must of necessity be undergone even yet by medi-

cine in its various branches, from time to time, is only consistent with all we know of what has taken place in other departments of knowledge. But that medicine was, from the first, in an extraordinary degree, and that of direct necessity, from the nature of its scientific operations, endowed with an inheritance of dependent, and therefore fluctuating, principles and practices, could have been, and indeed ought to have been, earlier recognized. It could and ought to have been earlier seen that, of the various departments of human knowledge which admit of approach to a state of final (theoretic) perfection, medicine must, from the nature of the case, be amongst the last, if not the very last, to reach a condition of even moderate perfection and stability in its hypotheses. This has never been sufficiently recognized; yet let us reflect for a moment how many and how various were the sciences and scientific appliances which had to be advanced to a certain standard of positive knowledge, before medicine was in a position to avail herself of their aid in determining the structural and functional laws of the animal organism. It is only within a period still recent that the use of superior optical instruments has given us something approaching to a correct knowledge of the minute organization of animal textures; it is no remote era since chemistry has enabled us to realize some just notions of the great systemic changes constantly being effected in the universal and never-ceasing processes of tissue-metamorphosis, and that physical and hydrostatical science has been successfully applied to the elucidation of the great problems of the blood-circulation.

Till a perfect knowledge of structure and function as pertaining to man in health, be obtained, a whole and complete theory of what pertains to the human frame in disease is manifestly impossible. While, in fact, anatomy and physiology present, as they even still do, many important lacunes to be filled, and many incomplete and unsound hypotheses, destined, we trust, ere long to give way to the active researches of science, as prosecuted in the present day, pathology, or the doctrine of disease, must likewise remain an imperfect branch of knowledge. And upon pathology, it may be remarked in passing, waits the science of therapeutics, whereby, as a rational and logical adaptation of means to ends, it is anticipated we shall be enabled to substitute the results of experiment, observation, and induction, in the treatment of disease, for the blind methods, nostrums, and conceits, of the medicine-mongers, pharmacologists, and polypharmacists of a past day, who have transmitted no small heritage of error and of ill to the present.

Under influences derived from the foregoing causes we are

in the habit of speaking of disease, even in the present day, as if it were an individualized and almost impersonated entity; we treat of it as a thing having parts, properties, and actions peculiar to itself, and as it were inherent in it; we assign to it a definite course, duration, and issue; we hear of its force, its fatality, or its innocuous character; it has species and varieties, forms, periods, and modes; it has been endowed with national and historic peculiarities; and, finally, if it has not enjoyed the power of propagating its kind in the ordinary sense, it has nevertheless been allowed more than one equivocal means of extension to individuals and masses of the human family, and its hereditary transmission (in many instances at least) seems to be admitted on all hands without question.

In a past day Paracelsus, the boasted *Lutherus Medicorum*, pronounced disease to be "*einen ganzen menschen*", an entire man; he regarded it as a self-existent parasitic organism, and all his efforts were directed to seek the arcana which should attack and destroy it. Few, if any, before or since, gave such positive expression to their views, but almost all regarded disease as an independent essence, if not a distinct entity.

The views of Paracelsus are still more specifically exemplified in the following passage from the pen of Henle:—"Hippocrates had spoken of a 'divinity' which manufactured and removed morbid matter. Its analogue in the system of Paracelsus is the *archeus*, the vital principle, the alchymist in the organism, whose business is the reception of nutriment, assimilation of food, and the removing of the excrement. The *archeus* struggles against death, excites all the healthy members in order to fight against disease, and removes the extraneous vitality of disease, as the chemist the impure metal from gold. By means of the *crisis* the remains of the morbid body are evacuated, and the vitality purified of the dregs adhering to it. In accordance with these ideas, Paracelsus designated fevers as sanative efforts of nature, and thereby formed the germ of that comic mythos, which the succeeding age so naïvely developed". Through the doctrines of Hoffman and Stahl, in a subsequent day, almost equally erroneous views were propagated, under other forms, it is true, but still as widely remote from a just pathology of disease. It mattered little how the theories of the schools became modified; the same fundamental error, of regarding disease as an entity, was perpetuated in all, or almost all schools, for we can except only such few illustrious names as those of Sydenham, Haller, Morgagni, and a few others.

It is true that efforts were not wanting, here and there, to break from the trammels which were thus imposed on medicine.



In no schools more than those of Italy were such efforts conspicuous, and nowhere did they take a more just direction. It little accords with the policy which ignorance and bigotry would assign to the Catholic rule in Italy, or with the calumnies so freely circulated in connection with the honoured name of Vesalius, to find the examination of dead bodies ordered, under the direct authority of the Papal chair, with a view to determine the nature and seat of disease in the most virulent maladies; yet this we know to have been the case.<sup>1</sup>

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<sup>1</sup> It may not be wholly irrelevant to note here how much was accomplished for medicine by some of the great Italian schools in a country supposed emphatically to lie under the shadow of the "darkness of the middle ages". Some idea of the intellectual activity of this "benighted" portion of the south of Europe will be gathered from the statement, that, previous to the so-called Reformation, and before its much vaunted influence could have played any part in the advancement of knowledge, no less than seventeen universities had been founded in Italy alone, at various periods from the date of the first systematic studies in Monte Cassino (sixth to the eleventh century) and Salerno (eighth to twelfth century) to the fifteenth century. So early as 1315, anatomy was inaugurated at Bologna by Mondini, with the public dissection and demonstration of human bodies, and, subsequently, the publication of illustrative plates, in which many anatomical errors of the Galenic school were corrected. Vesalius (born at Brussels, and educated at Louvain) sought the further development of his anatomical studies in Venice, where, with the assistance of Titiano Vicellio, commonly known as Titian the celebrated painter, and Giovanni de Calcar, he executed the first (complete) and best series of anatomical plates which have come down to us. Anatomical plates were likewise executed from nature by Leonardo da Vinci for his friend Marco Antonio della Torre.

The recognition of the Italian schools of this period by the learned throughout Europe is undoubted, and to them all in search of advanced knowledge in anatomy, chemistry, and the other allied physical sciences, resorted in the fifteenth and sixteenth centuries. It has been asserted indeed, and not without truth, that what was not discovered by the Italians themselves at this period, was discovered by those who studied in their schools; and without the preliminary knowledge prepared by the Italians, many of the greatest discoveries of that age in medicine, as well as in the sciences, would never have been made perhaps till the present day. To one of the greatest and most practically important which could adorn any science, age, or country, these observations apply in a most especial manner: I allude to the discovery of the circulation of the blood, which has made the name of Harvey immortal, and which is so unjustly arrogated to itself exclusively by the English school.

That Harvey was not the sole nor immediate discoverer of the circulation of the blood, is proved by the following facts. Whether he was the first who described the complete circulation, pulmonic and systemic, or that through the system at large, I will inquire at another time. *It may be well doubted.*

The fame of the teachings of the Italian schools brought the young Harvey to Padua, as before him it had brought Vesalius and hosts of others to Italy, where he studied under the celebrated Fabricius ab Aquapendente. Now let us take a brief summary view of the state of knowledge at this time on the anatomical and physiological questions involved in the theory of the circulation of the blood. Servetus had already described the passage of the blood from the right ventricle of the heart to the left; Columbanus, its return to the left from the lungs. Le Vasseur was acquainted with the valves of the heart; Cuspalpinus had described the anastomosis of the arteries with the veins, which in itself implies the passage of the blood from one set of vessels to the other; Vesalius had ligatured the arteries, and noted the effects of this operation; Fabricius, the master of Harvey,

Much of the confusion of ideas and erroneous conceptions of disease has arisen in past times from the natural imperfections of language; no doubt somewhat too is to be attributed to a conventional laxity in the use of terms and forms of phraseology, furnished by obsolete analogies, and hypotheses which can no longer be regarded as tenable by the highly educated physician of the present day. In some respects, the language and hypotheses employed in the description of disease, and which are known to be false in fact, bear close resemblance to, and forcibly remind us of, the use still made in astronomy of forms of expression derived from the long exploded theory of the Sun moving round the Earth, and the explanation, and even computation, of many phenomena of the Heavenly bodies from their *apparent* motions. It is thus that the *apparent* forces of a fever, inflammation, or other diseased state, are assumed in medical language to perform active and self-dependent motions in, upon, or around an imaginary central and unmoved body, the human frame, while more close inquiry satisfies us that the *apparent* active motions of the fever or inflammation are but subjective phenomena, being the results, and so far the exponents, of the *direct* motions of the various parts of the animal organism. If accepted as a well understood and acknowledged conventionalism, in which, to avoid periphrasis, and for the convenience of familiar exposition, the apparent motions and actions of imaginary entities played the part of the real or direct motions of the various members of the animal organism, the hypothetic language and terms of medicine would be free from practical objection. But unfortunately it is almost universally the case to find the *apparent* taken for the *real*, and the most utter confusion of ideas prevailing as to the part performed on the one hand by disease (in its assumed capacity of an independent self-existent entity), and on

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had himself completed the anatomical description of the valves of the veins. In addition to all this, which constitutes the essential knowledge for arguing to a circulation, it may be asserted (but cannot be proved in our present limits, or without going fully into an exposition of his views and works), that Ruini possessed as complete and full a knowledge of the circulatory apparatus and the circulation of the blood itself, as that of Harvey subsequently elaborated.

Now it may be asked, if Harvey had remained in England, and prosed with colleges of physicians, and fawned upon royal patrons, what would be now known of his name or labours? and what would he have done to complete the knowledge of the circulation of the blood? The answer is obvious. Without Harvey's intervention in any manner, the discovery of the circulation was already assured to science by a multiplicity of experiments and observations amongst the fertile schools of Italy; on the other hand, without Padua and Fabricius, Harvey's was a name destined for no distinction. Be it understood, however, that we honour him not the less for what he has done, and for his most able and energetic advocacy of a cause which, without such aid in northern Europe, would doubtless have been slower to find recognition in schools wedded to older dogmas.

the other by the animal organs and functions. Now, not only is this a state of things inconsistent with the requirements of science and unworthy of the educated members of a highly scientific profession (or what ought to be such), but it leads, in not a few instances, to errors of a practical kind, and of grave consequence, in clinical medicine. While the faculties of the physician are absorbed in watching the vagaries of the assumed *αυτοκράτεια* fever, which it is impossible to reduce to a connected and consistent train of action, amenable to rational processes of medication, he is not in a position to command for himself a true insight into the workings of the various parts of the human machine in its abnormal condition of action, or to form a proper appreciation of the means likely to restore the physiological equilibrium of the system.

What has such loose, vague, and ill defined pathology produced in Practical Medicine, but in too many instances a hap-hazard use of nostrums, taken from a chance-medley *Materia Medica* on the faith of an "experience" which at best can only be regarded as an illustration of illogical argument from particular to general?

It is only, as well remarked by Henle, "when empirical medicine, dissatisfied with the therapeutical results hitherto obtained, feels obliged to attempt new methods of treatment, that it will put itself under the guidance of its twin-sister (rational pathology), rather than linger under the disgrace of that lamentable inefficiency which seizes upon anything fortuitous, in order to experiment hap-hazard upon some victims, too few for profitable results, too many for a tender conscience"!!

In the actual state of medicine, it is extremely difficult to point to any concrete body of opinion which can be taken as a fair exponent of the pathological doctrine of disease, generally adopted in the present day.

It is difficult to do this, not only for the science of medicine at large, but even for any one individual school; it is not difficult to attack this dogma or that, referring to an individual disease, and show its fallacies; but it is almost impossible to summarise the various theories of disease still in vogue, for the object we have in view. The opinions which we purpose to combat with respect to the "entity" and individual personation, so to speak, of disease, are (in the literature of our day) to be gathered from the use of incidental terms, and the implied rather than expressed possession of special attributes on the part of disease. Though, perhaps, nowhere so categorically expressed in the medical literature of our own age, it can hardly be denied that such a disease as fever, for example, is regarded by many writers, and commonly in the minds and language of medical men, holds a place as an entity, for a time swaying the human frame, almost as



distinct as when likened by Paracelsus to a demoniacal *archeus*, who, from without, entered into, and in his distempered rage shook, the fevered body with the physical impulse of an independent power. And even those who will accept the more advanced pathology of fever, still see in cancer, tubercle, or syphilis, an incontrovertible proof (as they hold it) of the specific nature of disease, of its independent attributes, of its analogy to self-existent parasitic organisms, and finally of its being something imported *in globo* from without, and superadded to the human frame, which had no previous existence in or upon it, and the effects, motions, and actions of which have no relation or analogy to those of the parts of the healthy body of man. In their views, pathological entities of disease become multiplied with every addition to the nosological scale.

It may be said, doubtless, that pathological anatomy and pathology, as cultivated within late years, have done much to dispel these mists of error, and to show us what diseased states of the human frame really are in all their forms and phases, however various. Much has unquestionably been effected in this respect, but it is only a small fragment of the great work which has to be accomplished before a rational pathology finds general acceptance in medicine. And it is not without importance to remark, that even now the prosecution of pathological anatomy is not unfettered by the continued acceptance of the doctrines of diseased entities and types and Morbid Species so-called.

All the considerations bearing on this subject are not without the highest scientific, as well as practical importance. If we adopt the view, that diseases have their own essential nature, their own attributes, parts, periods, and times, not only must our pathological doctrines be made to square with the current theories of disease, but therapeutics, as a scientific application of means to ends, must have the same limits. If, for example, fever be a thing from without, seizing on and implanting itself in the frame of man, the duty of the physician is forthwith to attack and expel the interloper *vi et armis*; or it may be considered that there is an internecine warfare between the autocratic entity disease, on the one hand, and the animal economy on the other, in which art sides with humanity, and both give battle to their common enemy. Pathology, not less than humanity, however, not unfrequently suffers from this alliance, and instead of the fever-demon, life is expelled, or perhaps both conjointly. No pathological views so much encourage the too often fatal "*nimia diligentia medici*".

Under another point of view, that indicated to us by rational pathology, fever comes to be regarded as a complex or aggregate

of phenomena, arising with intelligible relation of cause and effect from certain derangements in the force and intensity of normal functions, the order and sequence of which it is in our power to trace with precision. Fever is then a series of effects from known causes, and these causes are none other than those which operate in the body in health. Therapeutics have now another end and object, namely, to regulate and control, diminish or arrest, the undue actions in the system, while, at the same time, the forces of the economy are maintained, stimulated, and supported, as occasion may require, or the increased wear and tear of the system demand; in a word, medicine intervenes as an art, with means directed to restore the physiological equilibrium which constitutes health.

This is but one example, and but one class of considerations; the subject is fertile with others of no less importance. If, for instance, it be once established, for disease in general, as well as for its so-called individual genera and species, that, instead of possessing a specific nature, independent existence, special and defined courses, and propagative forces, and instead of being endowed with inherent powers of destruction, they are to be regarded as only subjective phenomena, the exponents of increased or otherwise deranged normal actions, we at once, and for ever, get rid of the category of *incurable diseases*; such scourges of humanity as leprosy, tubercle, cancer, syphilis, small-pox, the plague, yellow fever, cholera, and the like, lose half their terrors, and a new era of hope opens up for suffering humanity. Medicine, as an art based on scientific research, sees new triumphs before her, and rises to a sense of increased dignity, in anticipation of curative results, possible though remote. Of the ills that flesh is heir to, she sees none with which she may not grapple. What stimulus is not thus offered to the clinical physician for renewed research into the intimate structure of tissues, and the study of function, under physiological and pathological aspects! As all known actions of the human system are under the control of art within certain limits, and these chiefly limits of time, from the first moment that the physiological equilibrium is disturbed, the medical problems, even in cancer, are confined, and this is logically demonstrable, to early diagnosis, and the selection of appropriate therapeutics. When, in fine, such a disease as cancer ceases to be a specific morbid organism, it is of necessity removed from the list of incurable diseases, and comes logically within the domain of curative art. Let us not, however, be misunderstood; logic here anticipates art; it points out the possible, not the immediately practicable. But even this is an immense gain. Once scientific research is on the right path, it is but a question of time to realise results available for practice.

We may now proceed to consider what disease is, and in what aspect a strict and logical science warrants us in regarding the various forms and so-called types of disease, which manifest themselves in the human body.

It will be a seeming paradox to affirm, as the shortest way of expressing the proposition which lies at the bottom of our present considerations, that *Disease is not anything*; in other words, that the so-called essential diseases—as fevers; the specific diseases—as cancers, tubercle, syphilis; the particular diseases—as inflammations; the so-called morbid products—as lymph, pus, ichor, succus cancri, cancer-cells, tubercle-corpuscles, and so forth, have no independent existence; that we are in error in regarding them as self-existent pathological entities; in fine, that while the most advanced histological research demonstrates the existence of well-defined and persistent physiological types in the structural elements of the human body, the same means of inquiry show us, with equal certainty, that no independent types of pathological structure can be proved to exist.

These views may, perhaps, be still more expressly stated and more clearly illustrated as follows. The plastic forces operating in living organisms produce minute structural elements, of definite shape and size, which possess distinct and well-individualised physical properties, and, in several modes of aggregation, enter into the formation of the various tissues. We thus have, to take the most striking case, in the egg undergoing the process of incubation, blood-corpuscles, bone-corpuscles, sarcous elements (minute structural elements of muscle), fibrous tissue corpuscles, nerve-tubes and cells, formed from a fluid of highly complex chemical composition (white and yolk of egg), originally containing only the most minute and fine granulations, but otherwise homogeneous. The structural elements thus formed (blood-corpuscles, bone-corpuscles, etc., etc.) retain the character of individuality originally impressed upon them; no one of them passes into another in any further process of change. And with such regularity and precision do these various tissue-elements conform to the original type on which they have been developed, that it is found that in numerous instances, specific differences in size and shape are observable in the tissue elements in different classes of animals. This holds in an especial manner, as is well known, with respect to the blood and bone-corpuscles. Thus, the blood-corpuscles are of the shape of circular discs in all the great class Mammalia, with the exception of the camel, and dromedary, in birds, reptiles, and fishes, the corpuscles are elliptical in shape. Remarkable differences in the diameter of the blood-corpuscles have likewise been observed. In the size



and shape of the bone-corpuscles, other investigations have detected characteristic differences in certain classes of animals.

We are therefore warranted in stating, that well-defined types of physiological structure exist in the animal body.<sup>2</sup> Even in the fully-formed tissues—as muscle, bone, nerve, cerebral substance, etc., we recognize distinct and independent physical properties, and all these component elements of the animal body, are so many independent anatomical types.

In the field of pathology and pathological anatomy, on the other hand—and this is the gist of what we desire to maintain—there is no element having the same independent character in relation to disease, that a blood-corpuscle or bone-corpuscle has to the physiological structure of which it is a constituent element. *A bone or a blood-corpuscle is a true, persistent, independent physiological type; a pus-corpuscle, a lymph-corpuscle, a tubercle-corpuscle, or a cancer-cell, is not a true, persistent, independent pathological type.*

The proposition just enunciated will, perhaps, not now meet the universal and strenuous opposition which would once have greeted it, and that within very recent times. Yet it was precisely in this direction, namely, the supposed discovery of specific pathological types, that the most remarkable investigations which, for many centuries, have illustrated medicine, first pursued the path of error. When the microscope had discovered the blood corpuscle, and proved its universal presence in the circulating fluid, and defined its characters, it soon became recognized as a typical element: when the same instrument discovered the pus-corpuscle, showed its tripartite nucleus, and proved its constant presence and apparently invariable characters in inflamed structures, it is not surprising, for it was only a natural error, that it likewise should be regarded as a typical element of disease. Following the direction thus given, observations became multiplied, new pathological elements were discovered in rapid succession, and the pus-corpuscle, the tubercle-corpuscle, cancer cell, fibro-plastic cell, and other pathological elements, came to play the same part in diseased structures that the blood-corpuscle, bone-cell, sarcous element, etc., played in the tissue-formations of the healthy body. A new era was heralded in for pathology and pathological anatomy; pathological histology was destined to rank with the most exact of the sciences; and diagnosis, by the aid of the microscope, made unlimited promises of practical ends to be achieved by the discrimination of almost infinite diseased species. Such vaunting promise, however, was destined not to be realised; it was soon evident that we

<sup>2</sup> This position, as a whole, is in no way affected by the observations of Virchow on the permutations of the areolar tissue corpuscles.

had promised too much, and far more than it was at all possible, or in the nature of things, to accomplish. Infinite service was unquestionably rendered to pathological anatomy by the profound and extended observations taken up almost simultaneously in all schools under this new stimulus; a knowledge of diseased structure and action was thus acquired which would never have been otherwise attained. With disappointed expectations and the shortcomings of micrologists themselves, an unjust, though perhaps not wholly unmerited, stigma was thrown upon the most valuable and effective means of research which had fallen within the scope of medicine since the discoveries of Lænnec; and it was even of far more universal application than the mode of investigating disease introduced by him.

One instance will illustrate best the error of the micrologists, the mistaken direction they had pursued, and the injustice of the so-called practical school.

Fighting from a shifting ground, and with little logic and less common sense, the diagnosis of "malignant disease" was proposed by the physicians and surgeons of the practical school (so self-styled) to the micrologists, or the scientific school (so designated, and not in honour). Perhaps in few branches of inquiry was so much labour ever devoted to the following up of an *ignis fatuus*. Basing their investigations on the firm conviction in the existence of specific pathological types, the supposed typical anatomical element of "malignant" disease was sought for industriously in all schools. It was found, or thought to be so, and its characters defined with a precision almost mathematical. It is needless to say now more than that these characters were found, and at length admitted (at least by more than one investigator of true scientific acumen) to be inconstant and unreliable for specific diagnosis; and this in two ways, namely, as to the well-established absence of all specific histological elements in disease of undoubtedly "malignant" history, and, on the other hand, the presence of elements corresponding, in all essential characters, to those defined as pertaining to the (so-called) cell of true "malignant" diseases in diseases clinically non-malignant.

The former aspect of this question shows the universal belief in specific pathological elements, or, as we for the moment prefer to designate them for clearness sake, *types*; its present position shows that, at least with many advanced observers, the faith in this doctrine is profoundly shaken. It cannot, however, be said, even now, that a complete theory of cancer has been worked out, or that all notions of its being a parasitic organism are abandoned.

In the reaction which is on foot (and which, we trust, will extend itself) in micrological science and general pathology,

investigation, it is to be hoped, will no longer recognize for its chief aim the determination of diseased species.

What then, it will be again asked, is disease? *It may be defined as an action, mode, accident, or state of the forces, or functions, of the fluids, tissues, organs, parts or whole of the living body, in which they assume conditions, temporarily or permanently different from those which they enjoy when the body is in health, but in which all the phenomena and all the physical changes induced, of what kind soever, are but modifications in force or degree, without difference in kind, of those observable in the system in health.* If this definition be correct, it is manifest that disease can have neither species nor variety, that ulcer, cancer, fever, tubercle, syphilis, are but different manifestations of organic actions or processes fundamentally the same, however they may differ superficially; and such we maintain is the case: the differences are superficial and striking, the analogies and resemblances deeply seated, and intelligible only to the physician profoundly versed in pathology: they are, however, not the less clearly ascertained and positively definable.

In this view, it is obvious that disease must be in all instances referred to derangement of natural forces, functions, and actions, and to physical results following directly therefrom. The following is to be regarded only as an attempt to classify these various causes, which, of course, in this place can only be given in a very summary way:—

(A) Loss of physiological equilibrium,—

(1) In the regulative nerve-force, whether in the cerebro-spinal axis, the sympathetic system, or the system of the vagi;

(2) In the general circulation, or in local blood circles;

(3) In the process of tissue-metamorphosis, including general calorification, and tissue-element-displacement and renewal;

(4) In the process which regulates the balance between the ingesta and egesta, and which by elimination of material resulting from the perpetual wear and tear of the system, keeps it free from the contamination of effete and noxious products.

(B) Excess or diminution of normal actions as in exercise of nerve-force, circulation, secretion, etc.

(C) Disturbance of physiologico-chemical equilibrium;

(1) In blood and other fluids;

(2) In organs and tissues;

(D) Effects of physical forces, whether chemical or mechanical, exerted on tissues, organs or parts of the body, whether within or without.

We cannot more definitely bring into relief the view of the nature of Disease urged in this brief summary, than by comparing it with the categorical exposition of the classes of diseases



by a writer of such eminence and authority as Cruveilhier. It is hardly necessary to observe how distinguished a place this author has held amongst the pathologists of the present century. He defines general pathological anatomy as that branch of pathological anatomy, the object of which is the determination and general study of morbid species.<sup>3</sup> He openly proposes the question: "Do there exist species in pathological anatomy?" which he solves in the affirmative, by stating: "Yes, there exist morbid anatomical species quite as distinct the one from the other—quite as natural, as the zoological species"; and he goes on to declare: "The individuals of each species, I would venture to say of each pathological family, are recognizable by features as characteristic as if they proceeded the one from the other by means of generation; and it is a thing which has often excited my admiration to meet, after an interval of ten years, (pathological) alterations so identical, that descriptions and designs preserved amongst my drawings were applicable, in the most exact manner, to the fresh specimens which I had under my eyes, and which appeared to be the faithful reproduction of them". We beg leave to draw particular attention to the concluding observations of this extract. In a series of propositions, fourteen in number, this able anatomist proceeds to establish certain laws which he regards as determined with certainty respecting the "morbid species". Amongst these laws are to be chiefly noticed, in relation to our present consideration, those embodied in the propositions that "the number of morbid species is limited"; that "the morbid species are identical, whatever be their seat"; that "there exists a certain number of special lesions"; that the "morbid species are not capable of transformation, the one into the other"; and "that the living tissues are unalterable by themselves".

From the point of view in which we are engaged in studying the pathology of disease, it must be said that issue is to be taken with Cruveilhier and those who hold similar opinions upon each individual proposition which embodies the "laws" above briefly cited. In the passage in which he alludes to the very remarkable recurrence of pathological states and phenomena, with almost stereotyped regularity, is to be found one of the strongest, and apparently most striking, though at the same time one of the most easily refuted, proofs of the doctrine of distinct morbid species, or independent pathological types, as we prefer to designate them. Indeed, with anything like close scrutiny, it will be found that the so-called morbid species have, even in this respect, but the most superficial resemblance to independent physical entities in any department of nature or art. *In organic or inorganic fabrics having complicated structure,*

<sup>3</sup> Traite D'Anatomie Pathologique General. Paris, 1849.

*definite coördination of parts, and persistent and determinate physical properties, it is not matter for surprise that like physical agencies, or, in general, like causes, should be followed by like results.* And the more persistent is the physical conformation, the more like the physical properties, and the more identical in force and intensity the physical and other agencies operating from within or without, the more identical, even to their very minutest phenomena, will be the mechanical or other effects which follow from the irregular, impeded, excessive, or defective action of the several forces concerned. It is matter of every-day experience, that, in complicated machines, accidents recur in a manner the most regular and almost systematized, and with an identity almost stereotyped in the very minutest features of the injury which results. And yet, to designate an injury or "lesion" occurring in the physical world as a "morbid species" or independent type of accident, and to claim for it an existence and characters as self-dependent as those which reside in the substance (metal, or what aught else it may be) which becomes the subject of such well-marked and recurrent injury, would be not less absurd than to assign to the "morbid species", affecting the physical apparatus of the animal organism, characters as distinct and as natural as those possessed by the zoological species. The very constant change from fibrous to crystalline structure in certain metals, as iron, and their consequent fracture, under the influence of a mechanical force like that of vibration, is as much entitled to be regarded as a "morbid species" affecting the metal, as *mollities ossium* deserves to be considered an independent diseased type or "morbid species" in the bones of the human subject.

In our present limits, it will not be possible to follow this extensive subject and ample theme for enlarged pathological and perhaps metaphysical disquisition into the detail required for its full exposition. The consideration of it has yet to be taken up at large, and in a sense and manner worthy of the scientific as well as practical interests of medicine and humanity involved. It must serve our purpose in the present instance to illustrate our views on the questions at issue, by selecting some two or three examples from the best defined types of disease, and the most generally recognized "morbid species", and show how they are to be interpreted in conformity with the principles laid down in our definition of the nature of disease, as already explained. We shall take an example or two from pathological histology, and one from general pathology.

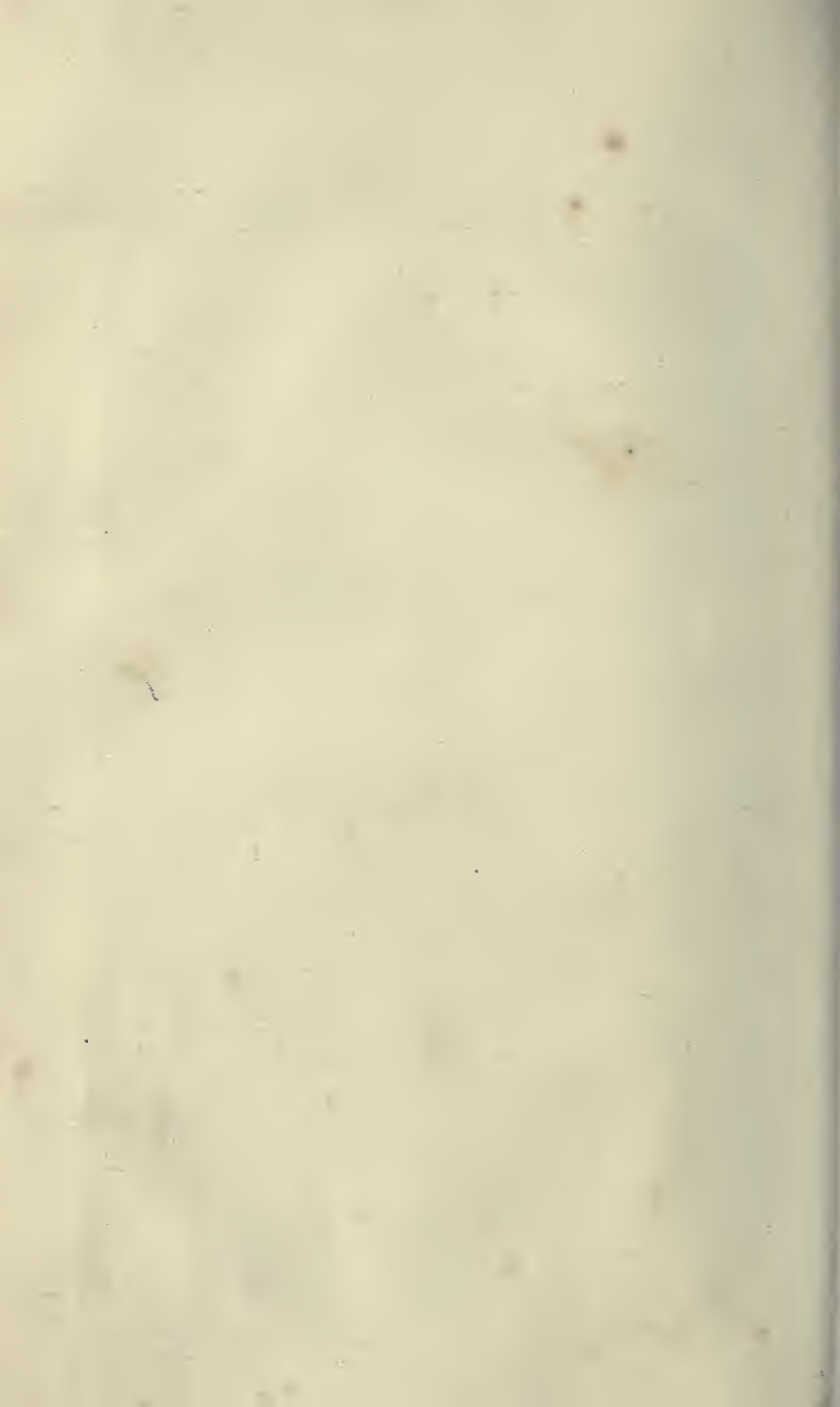
[To be continued.]













THE  
ATLANTIS.

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ART. I.—*The Ordo de Tempore.* By VERY REV. JOHN HENRY  
NEWMAN, D.D.

I DO not know where to find, what doubtless is to be found somewhere, a perfect analysis of the *Ordo de Tempore*, the succession of sacred seasons, as it stands in the Catholic calendar. It has to deal with some considerable difficulties, and its disposal of them is very beautiful. I sometimes fancy I could interest a reader in it, and I will try: and, though I must do so in my own way for want of a better, and though in consequence I am obliged to speak under correction of any authoritative exposition of it, if such exists, still I do not think I can be much out in my analysis, even though it be incomplete.

The *Ordo de Sanctis* is invariable through the year. Each saint has his day, which is never changed year after year, except by an accidental transference or postponement. Here, the only call for arrangement and adjustment rises out of the necessity of reconciling this *Ordo* with the *Ordo de Tempore*. For the *Ordo de Tempore* is far from invariable year after year; on the contrary, as I have intimated, it even disturbs the tranquil course of the *Ordo de Sanctis*. It is on this account especially, that the yearly Directory called the “*Ordo Recitandi*” is necessary; for the *Ordo de Tempore* is not only variable itself, but it interferes with the harmonious succession of Saints’ Days in the *Ordo de Sanctis*. If we look at the table of Transferred Saints’ Days in the yearly “*Ordo Recitandi*”, we shall find that they are all occasioned by the collision between the two *Ordines*, *de Sanctis* and *de Tempore*. For instance, in the

present year, St. Thomas was thrown out of his day, March 7, because it was the Fourth Sunday in Lent; and the Seven Dolours lost its Friday because it was the Feast of St. Joseph.

Left to itself, the *Ordo de Sanctis* is invariable, but the *Ordo de Tempore* is never the same two years running. Its chief features indeed, viewed relatively to each other, are always the same: Advent, Christmas, Epiphany, Lent, Easter, and Pentecost come in succession; but these seasons are not fixed to determinate days in the civil year, as the Festivals of the Saints are. Easter Day is in this year upon one day in March or April, in that year on another. The coincidence then of days in the civil year and in the sacred year, had to be reduced to rule; and this is done, I consider, very beautifully in the provisions of the calendar upon the subject, as I propose to show in these pages.

### 1.

The first and chief difficulty in the *Ordo de Tempore* is obviously this:—that Easter Day depends upon, is later than, the full moon in March or in April, and the full moon is not fixed to any certain day in either month. The lunar month is about 29 days, the civil varies from 28 to 31. As the full moon is not constant to one day of either month, neither is the Easter Day. Next, there is this additional disturbance, that Easter Day is always kept on a Sunday, the Sunday after the full moon (mean time) which follows upon March 21. Thus, even were the day of the full moon fixed to a given day of a given month in the civil calendar, say March 22, Easter Day, it would not on that account be a fixed day, for it must be a Sunday, and the Sunday after that March 22 may be any one of the seven following days. Easter Day then is variable, first, because the full moon may fall on any one day out of 29, and next, because it may fall on any day of the week out of the seven.

Nor is this the whole of the difficulty. Easter Day is one great centre of feasts and seasons in the ecclesiastical year; but there is another such season, and that is Christmas Day. And, though Christmas Day is fixed in the civil year, Advent Sunday, which precedes and depends upon it, is not. It is the fourth Sunday before Christmas Day; and since Christmas Day, as being fixed in the month, may be any one of the seven days of the week, it follows that Advent Sunday may be one or other of seven days of the month. When, for instance, Christmas Day is Monday, the fourth Sunday in Advent is the day before, that is, December 24, and the first Sunday in Advent;

or Advent Sunday, will be December 3. When Christmas Day is Tuesday, then Advent Sunday will be December 2, and so on through the seven days. The range of Advent Sundays, then, is from November 27 to December 3 inclusive.

Christmas with Advent, then, and Easter are the two centres of the sacred year, with a circle of seasons and feasts about each of them, and all inserted and having a place, a shifting place, in the civil year; and the problem to be solved in the *Ordo de Tempore* is, how to overcome the disarrangement caused by the intersection, so to call it, of these two circles, standing in relation, as they do, to the course of weeks and months. When are we to cease, for example, to date with a reference to Christmas? When with a reference to Easter? Were both Christmas with Advent, and Easter, fixed, there would be nothing more to settle; but the interval between Advent Sunday and Easter Sunday varies year by year, and also the interval between Easter and Advent; and it has to be determined when the one is to end and the other to begin. And there is this additional difficulty, that, the Easter before a given Advent being always a different day in the year from the Easter after Advent, there are three dates to be taken into account, and reduced to system, one Advent and two Easters.

Now let us see how these variations are actually adjusted; that is, what is the abstract scientific arrangement, which, year by year as it comes, is to be appealed to and applied. I speak of the scientific theory of arrangement for obvious reasons:—for instance, leap year introduces a disturbance, which must be neglected in the theory:—that is the sun's doing. The moon is the cause of a disturbance of a different sort, viz., though many consecutive days may be Easter days, they do not actually follow each other in course year by year in regular succession. I mean, the 6th of April is not Easter Day in one year, the 7th in year two, the 8th in year three, and so on; but for the scientific theory I shall place them in sequence, that is, following, not the chronological order, as it is sometimes called, or order in fact, but the logical, or order in system.

## 2.

I observe first, as a matter of fact, to be taken as a *datum* and not to be proved here, that Easter Day may fall on any one of thirty-five successive days, that is, on any day of five successive weeks, from March 22 to April 25, both inclusive. Let us suppose, then, a column made of these thirty-five days, one after another, March 22, 23, 24, etc., and so on to April 22, 23, 24, 25. This is the Easter range.



Next, I shall place two other columns of dates, one on each side of this central column, and each of them dependent upon it.

The one on the left of the Easter column shall be the Septuagesima column. Septuagesima Sunday is always nine weeks or sixty-three days before Easter Sunday. As then there are thirty-five days on which Easter Sunday may fall, so there are thirty-five days on which Septuagesima Sunday may fall. The first of these, counting back nine weeks from Easter Day, March 22 (and taking no account of leap year), is January 18; and the last, counting back from Easter Day, April 25, is February 21. This is the Septuagesima range of days, on the left of the Easter column.

The column on the right of the Easter column will consist of the Post-Pentecostal range; and the Sundays which are marked down it must be the 23rd Sunday after Pentecost. This is the last proper Pentecost Sunday; there is no proper 24th, etc., and the "ultima" is shifting. Up to the 23rd Sunday the order of Sundays after Easter Day is as regular and invariable as the nine Sundays back to Septuagesima before Easter Day. How many Sundays is it from Easter Day to the 23rd after Pentecost? Seven to the day of Pentecost, or Whit-Sunday, and twenty-three more to the 23rd; that is, altogether thirty Sundays or weeks;—invariable, I say, following one the other in fixed order. This is the column to the right of the Easter column.

Here then we have the whole Paschal period, from Septuagesima Sunday to the 23rd Sunday after Pentecost; nine weeks before Easter Day and thirty weeks after, altogether thirty-nine weeks, are precisely nine calendar months, or three-quarters of year. Though the Paschal period, as I have called it, varies year by year in its place in the civil year, because Easter Day varies, the Paschal period does not vary in its length, it is always nine calendar months precisely. There is a fixed succession of thirty-nine weeks from Septuagesima Sunday to the 23rd Sunday after Pentecost.

One other result is this: that, as Septuagesima falls in January and February, and Easter Day falls in March and April, so does Pentecost 23rd fall always in October or November. Nay further than this, since it is exactly nine calendar months from Septuagesima to Pentecost 23rd, it follows that, whatever be the day of the month in January or February on which Septuagesima falls, on the same day of the month in October or November respectively does Pentecost 23rd fall. Thus, if Septuagesima is January 18, then Pentecost 23rd is October 18; if the former falls on February 1, the latter falls on November

1; if the former on February 21, then the latter on November 21. And on the whole the Septuagesima series correspond all along, in the day of the month on which that Sunday falls, with the day of the month on which, in the Pentecost 23rd series, that Sunday falls.

Now, then, we can fill up the dates in the third column or 23rd Pentecost, which is on the right of the Easter column. We shall have to go through thirty-five days from October 18 to November 21; putting October 18 against January 18, and so on till we end with November 21 against February 21. Thus:—

Septuagesima Sunday.	Easter Day.	23rd Sunday after Pentecost.
January 18	March 22	October 18
19	23	19
20	24	20
21	25	21
etc., etc.	etc., etc.	etc., etc.
to	to	to
February 19	April 23	November 19
20	24	20
21	25	21

Now let us have recourse to the “Ordo Recitandi” for the six years from 1849 to 1851, and from 1853 to 1855. It will be found to bear out the conclusions, at which I have arrived theoretically.

	Septuagesima.	Easter.	Pentecost 23rd.
1849	February 4	April 8	November 4
1850	January 27	March 31	October 27
1851	February 16	April 20	November 16
1853	January 23	March 27	October 23
1854	February 12	April 16	November 12
1855	February 4	April 8	November 4

The years 1852 and 1856 were leap years, which ought to throw out the exact correspondence of Sundays by one day; and hence, in accordance with the above rule, Septuagesima was February 8, but Pentecost 23rd was November 7 in 1852, and Septuagesima January 20, and Pentecost 23rd October 19, in 1856.

## 3.

So much on the connection of Easter Day with Septuagesima and Pentecost 23rd; but can nothing be done to make the actual succession of Easter Days seem less capricious? Yes, something, as I proceed to show.

Let it be observed, that, as Christmas Day is a fixed day of the month, it may be on any day of the week; it runs through seven days, and, as the days in a year exceed fifty-two weeks by one day, a fixed day in any month travels forward along the days of the week in a succession of years. Thus (neglecting leap years), if the 25th of December, Christmas Day, be on Monday in this year, it will be on Tuesday next year, and on Wednesday the year after, and so on to Sunday inclusive; and, after completing the week it will next year be on Monday again, and so on for ever. In consequence, the fourth Sunday in Advent, being the Sunday immediately before Christmas Day, will travel backwards, in those same successive years, along the days of the month; when Christmas Day is on Monday, the 4th Advent Sunday will be on the 24th; when Christmas Day is on Tuesday, it will be on the 23rd, and so on successively the 22nd, 21st, 20th, 19th, and 18th, and so on, over and over again, for ever. And again, Advent Sunday, which is three weeks before that fourth Sunday, will be successively on December 3, 2, 1, November 30, 29, 28, 27, in never-ending routine. To these seven days Advent Sunday is tethered. The feast of St. Andrew is just in the middle of them, November 30, with three possible Advent Sundays before it, and three after.

Now let us observe what we have hereby gained. Advent begins with a Sunday, and must be one of a certain seven days; but Pentecost 23rd, which ends what I have called the Paschal period, is also a Sunday;—therefore there must be also a whole number of weeks without any days over, between the end of the Paschal period and Advent Sunday, the commencement of the Christmas period. If, for instance, Advent Sunday falls on November 27, Pentecost 23rd cannot fall on any whatever of the thirty-five days from October 18 to November 21, which constitute its range, but it must fall on such a day out of the number as will secure a round number of weeks between it and November 27.

How many such days are there in its whole range? Of course, one in seven. Therefore, out of the thirty-five possible days for Pentecost 23rd, only five are actually possible in this particular case of Advent Sunday falling on November 27.



The possible days, counting backwards, are November 20, 13, 6, October 30 and 23. And in like manner when Advent Sunday is November 28, there are only five possible days on which the previous Pentecost 23 can fall; and so in the case of all the Advent Sunday month-days, November 29, 30, December 1, 2, and 3.

And, since Easter Sunday and Septuagesima Sunday vary with Pentecost 23rd, it follows that out of the whole 35 possible days, on which Easter may fall, there are only five days possible, when Advent Sunday is November 27; and the same is true for all the other days of the month which are possible for Advent Sunday. It seems then that in every year Easter Day is one out of five days, and which the five days are is determined (practically) by the day on which the following Advent Sunday falls. And this is true of Septuagesima Sunday also.

Moreover, as the day of the month on which Advent Sunday falls, depends on the day of the week on which Christmas Day falls, on the latter also depend the five days which in every year are possible for all three, Septuagesima, Easter Day, and Pentecost 23rd.

Once more: it is awkward to make a day at the end of the year, December 25, the index or pivot of days and seasons which have gone before it. I observe then that (neglecting leap year) as December 25 falls on this or that day of the week, the preceding January 1 falls on a corresponding day, so that, according to the day of the week on which the first day of the year falls are the five days determined for Septuagesima, Easter and Pentecost 23rd. When December 25 is on a Monday, then New Year's preceding was on Sunday; when on Tuesday, New Year's Day was on Monday, etc. I shall call the seven years which successively begin with Sunday, Saturday, Friday, etc., years A, B, C, D, E, F, G, and then we have the following table:

Year.	Jan. 1.	Septuages.		Easter Day.		Pentecost 23rd.		Advent Sunday.	Christmas Day.
		Jan.	Feb.	Mar.	April.	Oct.	Nov.		
G	Mo.	21, 28.	4, 11, 18	27.	3, 10, 17, 24	21, 28.	4, 11, 18	Dec. 2	Tu.
F	Tu.	20, 27.	3, 10, 17	28.	4, 11, 18, 25	20, 27.	3, 10, 17	1	We.
E	We.	19, 26.	2, 9, 16	22, 29.	5, 12, 19	19	26, 2, 9, 16	Nov. 30	Th.
D	Th.	18, 25.	1, 8, 15	23, 30.	6, 13, 20	18, 25.	1, 8, 15	29	Fr.
C	Fr.	24, 31.	7, 14, 21	24, 31.	7, 14, 21	24, 31.	7, 14, 21	28	Sa.
B	Sa.	23, 30.	6, 13, 20	25.	1, 8, 15, 22	23, 30.	6, 13, 20	27	Su.
A	Su.	22, 29.	5, 12, 19	26.	2, 9, 16, 23	22, 29.	5, 12, 19	Dec 3	Mo.

This table, which has been formed from the preceding analysis, agrees with the table in the Missal and Breviary, the letter of the alphabet which denotes the year, being the *Litera Dominicalis*. However, that authentic table has no occasion to mention Pentecost 23rd, or its connection with Septuagesima, of which I have made such use above, and shall also avail myself in what follows.

## 4.

Hitherto I have been speaking of the Christmas period only in its bearings upon the Paschal period: now let me speak of it for its own sake.

The Paschal period varies in its dates, but never in its length: it is always thirty-nine weeks, or nine calendar months. But, unlike Easter Day, Christmas Day is fixed; is its period fixed also, or does it vary in its length? I cannot answer this question, till I know what is meant by the Christmas period: do we mean by it (1) that season which the Paschal nine months interrupt, that divided season, lying at the extremities, the beginning and the end of one and the same year, and which, because divided, has no proper title to be called a period at all? or do we mean (2) that continuous lapse of weeks lying partly at the end of one year and partly at the beginning of the next? Let us take these two cases separately, and the second case first.

The actual continuous Christmas period lying partly in one year, partly in the next, between Pentecost 23rd of one year and Septuagesima of the next, is not only variable in length, but too variable to admit of being reduced to rule.

At first sight it admits of as many as twenty-five different lengths; for every year, as I have shown, allows of five possible dates for Septuagesima and Pentecost 23rd; now the continuous Christmas period is from the Pentecost 23rd of this year to the Septuagesima of the next; since then the Pentecost 23rd may be any one out of five dates, and the next Septuagesima also any one of five, there result twenty-five possible lengths of the continuous Christmas period. Nor is there any easy rule for determining the succession of their variations in consecutive years. I do not propose any formula then for determining the length of the continuous Christmas period; for it depends on two conditions, practically independent of each other, the dates of the previous and of the succeeding Easter.

Some idea of these variations will be gained by the inspection of them as they occurred between 1848 and 1857:

	1848-9.		1849-50.		1850-1.		1851-2.	
	Weeks.		Weeks.		Weeks.		Weeks.	
1. Before Advent.	2	Nov. 19 Nov. 26	4	Nov. 4 11 18 25	5	Oct. 27 Nov. 3 10 17 24	2	Nov. 16 23
2. Advent to Epiphany.	5	Dec. 3 10 17 24 31	6	Dec. 2 9 16 23 30 Jan. 6	6	Dec. 1 8 15 22 29 Jan. 5	6	Dec. 30 7 14 21 28 Jan. 4
3. After Epiphany.	4	Jan. 7 14 21 28	2	13 20	5	12 19 26 Feb. 2 9	4	18 25 Feb. 1
Sum Total	11		12		16		12	

	1852-3.		1853-4.		1854-5.	1855-6.	1856-7.
	Weeks.		Weeks.		Weeks.	Weeks.	Weeks.
1. Before Advent.	3	Nov. 7 14 21	5	Oct. 23 30 Nov. 6 13 20	3	4	6
2. Advent to Epiphany.	6	28 Dec. 5 12 19 26 Jan. 2	6	27 Dec. 4 11 18 25 Jan. 1	5	6	6
3. After Epiphany.	2	9 16	5	8 15 22 29 Feb. 5	4	1	4
Sum Total	11		16		12	11	16



However, in spite of this irregularity in the continuous Christmas period, it has some kind of intelligible shape, thus:

In the first place, since we know the earliest and latest possible dates of Pentecost 23rd and Septuagesima, we can ascertain the longest and shortest measure of the Christmas period. Pentecost 23rd may be as early as October 18; Septuagesima as late as February 21; this whole interval from October 18 in one year to February 21 in the next, is one hundred and twenty-five days or eighteen weeks. Again, Pentecost 23rd may fall on November 21, and the following Septuagesima as early as January 18, that is, at an interval from it of fifty-seven days or eight weeks. Thus eighteen weeks is the longest, and eight weeks the shortest Christmas period.

Next, this period, whatever its length, is made up of three parts: 1. The central portion, which I might call the *Tempus Natale*, from Advent Sunday to the first Sunday after Epiphany. 2. The Ante-natal portion between Pentecost 23rd and Advent Sunday. 3. The Epiphany or Post-natal, between the first Sunday after Epiphany and Septuagesima.

The possible length of each of these three is also easy to ascertain. 1. The Natal Time is ordinarily six weeks (i.e. except when Advent Sunday falls on December 3, and then, the Epiphany falling on Saturday, the Natal portion loses a week). 2. The Ante-natal portion varies from one week (viz. when Pentecost 23rd falls on November 20 or 21, and is the "ultima" Sunday) to six weeks (viz. when Pentecost 23rd falls between October 18 and 22, and there are twenty-eight Sundays after Pentecost). 3. The Post-natal portion also varies from one week to six; for, if the Sunday after Epiphany be January 11, 12, or 13, and Septuagesima be January 18, 19, or 20, it is one week; and if the former of these Sundays be January 7-9, and the latter February 18-21, then there will be all the six Sundays, as they stand in the *Ordo de Tempore*.

It appears then that the longest Christmas period consists of six, six, and six weeks; that is, eighteen weeks, which agrees with my former calculation; and the shortest is one, six, and one, that is, eight weeks, which also agrees with what I have determined above.

## 5.

Now, secondly, let us consider the Christmas season, as contained in one and the same year, that is, as partly at the beginning of it, and partly at the end: can we determine the length of these two portions taken together? Certainly we can, and, as it would seem at first sight, without any difficulty; for, as the Paschal period takes up exactly nine calendar months or thirty-nine weeks, there are three months or thirteen weeks left for

the Christmas. And, as to the separate portions, they are always the same, though not in the same place; for, in order to allow for the variation of the date of Easter Day (which ranges through thirty-five days or five weeks), of the six Sundays after Epiphany, those are omitted year by year, which would interfere with an early Septuagesima, and are introduced instead between Pentecost 23rd and Advent. This is so simple an arrangement, that it would seem as if it could have no difficulty, and there would be nothing to observe upon it; for as many weeks as are taken out of the Christmas three months by an early Septuagesima of any year, the same number is paid back to it by the corresponding early Pentecost 23rd of that year; however, the arrangement has not run quite smoothly, as the following table shows:

Varia- tions.	EPIPHANY SUNDAYS before Septuagesima	SEPTUA- to PENTE- GESIMA COST 23. 39 Weeks or 9 Calendar Months.	EPIPHANY SUNDAYS intercalated after Pentecost 23 and before Pent. 24.	Sundays after Pentecost.	ADVENT SUNDAY.
1	1. [2 dropped]	Jan. 18 Oct. 18	3. 4. 5. 6.	28	Nov. 29
2	1. [2 dropped]	19 19	3. 4. 5. 6.	28	30
3	1. [2 dropped]	20 20	3. 4. 5. 6.	28	Dec. 1
4	1. 2.	21 21	3. 4. 5. 6.	28	2
5	1. 2.	22 22	3. 4. 5. 6.	28	3
6	1. 2. [3 dr.]	23 23	4. 5. 6.	28	Nov. 27
7	1. 2. [3 dr.]	24 24	4. 5. 6.	27	28
8	1. 2. [3 dr.]	25 25	4. 5. 6.	27	29
9	1. 2. [3 dr.]	26 26	4. 5. 6.	27	30
10	1. 2. [3 dr.]	27 27	4. 5. 6.	27	Dec. 1
11	1. 2. 3.	28 28	4. 5. 6.	27	2
12	1. 2. 3.	29 29	4. 5. 6.	27	3
13	1. 2. 3. [4]	30 30	5. 6.	27	Nov. 27
14	1. 2. 3. [4]	31 31	5. 6.	26	28
15	1. 2. 3. [4]	Feb. 1 Nov. 1	5. 6.	26	29
16	1. 2. 3. [4]	2 2	5. 6.	26	30
17	1. 2. 3. [4]	3 3	5. 6.	26	Dec. 1
18	1. 2. 3. 4.	4 4	5. 6.	26	2
19	1. 2. 3. 4.	5 5	5. 6.	26	3
20	1. 2. 3. 4. [5]	6 6	6.	26	Nov. 27
21	1. 2. 3. 4. [5]	7 7	6.	25	28
22	1. 2. 3. 4. [5]	8 8	6.	25	29
23	1. 2. 3. 4. [5]	9 9	6.	25	30
24	1. 2. 3. 4. [5]	10 10	6.	25	Dec. 1
25	1. 2. 3. 4. 5.	11 11	6.	25	2
26	1. 2. 3. 4. 5.	12 12	6.	25	3
27	1. 2. 3. 4. 5. [6]	13 13	0.	25	Nov. 27
28	1. 2. 3. 4. 5. [6]	14 14	0.	24	28
29	1. 2. 3. 4. 5. [6]	15 15	0.	24	29
30	1. 2. 3. 4. 5. [6]	16 16	0.	24	30
31	1. 2. 3. 4. 5. [6]	17 17	0.	24	Dec. 1
32	1. 2. 3. 4. 5. 6.	18 18	0.	24	2
33	1. 2. 3. 4. 5. 6.	19 19	0.	24	3
34	1. 2. 3. 4. 5. 6.	20 20	—1.*	23	Nov. 27
35	1. 2. 3. 4. 5. 6.	21 21	—1.	23	28

\* The expression "—1" means that the Pent. 23 is merged in the "ultima" before Advent, and a week suppressed.

It will be observed in this table, that of the six Epiphany Sundays (whether in their place or intercalated before Advent), in five years out of seven, one is dropped, that is, there is no place for it. The reason is this: the calendar contemplates only one Sunday after Christmas; it does not contemplate a second, as if the Epiphany certainly fell in the week after that first Sunday after Christmas, and the first Sunday after Epiphany were the next Sunday immediately upon that first Sunday. But, in matter of fact, in five years out of seven, there are two Sundays between Christmas Day and the first Sunday after the Epiphany. For this second Sunday the calendar makes no provision; it is as if it had reckoned it as one of the six Epiphany Sundays, and it (the Sunday) had (as it were) by accident got on the wrong side of the Epiphany. The consequence is, that (January having only a fixed number of Sundays) in those years in which there is a Sunday too much before the Epiphany, there is no room for the whole number of Sundays after Epiphany, and one Epiphany Sunday has to be suppressed.

J. H. NEWMAN.



ART. II.—*The Two Lovers of Heaven: Chrysanthus and Daria.*  
*A Drama of Early Christian Rome. From the Spanish of*  
*Calderon.* By DENIS FLORENCE MAC CARTHY, M.R.I.A.<sup>1</sup>

#### INTRODUCTION.

IN the *Teatro escogido de Don Pedro Calderon de la Barca* (1868), at present in course of publication by the Royal Academy of Madrid, Calderon's dramas, exclusive of the *autos sacramentales*, which do not form a part of the collection, are divided into eight classes. The seventh of these comprises what the editor calls mystical dramas, and those founded on the Legends or the Lives of Saints. The eighth contains the philosophical or purely ideal dramas. This last division, in which the editor evidently thinks the genius of Calderon attained its highest development, at least as far as the secular theatre is concerned, contains but two dramas, *The Wonder-working Magician*, and *Life's a Dream*. The mystical dramas, which form the seventh division, are more numerous, but of these five are at present known to us only by name. Those that remain are *Day-break in Copacabana*, *The Chains of the Demon*, *The Devotion of the Cross*, *The Purgatory of St. Patrick*, *The Sibyl of the East*, *The Virgin of the Sanctuary*, and *The Two Lovers of Heaven*. The editor, Sr. D. P. De La Escosura, seems to think it necessary to offer some apology for not including *The Two Lovers of Heaven* among the philosophical instead of the mystical dramas. He says: "There is a great analogy and, perhaps, resemblance between *El Magico Prodigioso* (The Wonder-working Magician), and *Los dos amantes del cielo* (The Two Lovers of Heaven); but in the second, as it seems to us, the purely mystical predominates in such a manner over the *philosophical*, that it does not admit of its being classified in the same group as the first (*El Magico Prodigioso*), and *La Vida es Sueño* (Life's a Dream)". *Introduccion*, p. cxxxvii. note. Whether this distinction is well founded or not it is unnecessary to determine. It is sufficient for our purpose that it establishes the high position among the greatest plays of Calderon of the drama which is here presented to the English reader in the peculiar and always difficult versification of the original. Whether less philosophical or more mystical than *The Wonder-working Magician*, *The Two*

<sup>1</sup> *Los dos amantes del cielo: Crisanto y Daria.* Comedias de Don Pedro Calderon de la Barca. Por Don Juan Eugenio Hartzenbusch. Madrid, 1856, tomo 3, p. 234.

*Lovers of Heaven* possesses a charm of its own in which its more famous rival seems deficient. In the admirable *Essay on the Genius of Calderon* (ch. ii. p. 34), with which Archbishop Trench introduces his spirited analysis of *La Vida es Sueño*, he refers to the group of dramas which forms, with one exception, the seventh and eighth divisions of the classification above referred to, and pays a just tribute to the superior merits of *Los dos amantes del cielo*. After alluding to the dramas, the argument of which is drawn from the Old Testament, and especially to *The Locks of Absalom*, which he considers the noblest specimen, he continues: "Still more have to do with the heroic martyrdoms and other legends of Christian antiquity, the victories of the Cross of Christ over all the fleshly and spiritual wickednesses of the ancient heathen world. To this theme, which is one almost undrawn upon in our Elizabethan drama,—Massinger's *Virgin Martyr* is the only example I remember,—he returns continually, and he has elaborated these plays with peculiar care. Of these *The Wonder-working Magician* is most celebrated; but others, as *The Joseph of Women*, *The Two Lovers of Heaven*, quite deserve to be placed on a level, if not higher than it. A tender pathetic grace is shed over this last, which gives it a peculiar charm. Then too he has occupied what one might venture to call the region of sacred mythology, as in *The Sibyl of the East*, in which the profound legends identifying the Cross of Calvary and the Tree of Life are wrought up into a poem of surpassing beauty".<sup>2</sup> An excellent German version of *Los dos amantes del cielo* is to be found in the second volume of the *Spanisches Theater*, by Schack, whose important work on Dramatic Art and Literature in Spain, is still untranslated into the language of that country,—a singular neglect, when his later and less elaborate work, *Poesie und Kunst der Araber in Spanien und Sicilien* (Berlin, 1865), has already found an excellent Spanish interpreter in Don Juan Valera, two volumes of whose *Poesia y Arte de los Arabes en España y Sicilia* (Madrid, 1868), I was fortunate enough to meet with during a recent visit to Spain.

The story of SS. Chrysanthus and Daria (*The Two Lovers of Heaven*), whose martyrdom took place at Rome A.D. 284, and whose festival occurs on the 25th of October, is to be found in a very abridged form in the *Legenda Aurea* of Jacobus de Voragine, c. 152. The fullest account, and that which Calderon

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<sup>2</sup> It may be added to what Dr. Trench has so well said, that Calderon's auto, "El arbol del mejor Fruto" (*The Tree of the choicest Fruit*), is founded on the same sublime theme. It is translated into German by Lorinser, under the title of "Der Baum der bessern Frucht", Breslau, 1861.

had evidently before him when writing *The Two Lovers of Heaven*, is given by Surius in his great work, *De Probatis Sanctorum Vitis*, October, p. 378. This history is referred to by Villegas at the conclusion of his own condensed narrative in the following passage, which I take from the old English version of his *Lives of Saints*, by John Heigham, anno 1630.

"The Church doth celebrate the feast of SS. Chrysanthus and Daria, the 25th of October, and their death was in the year of our Lord God 284, in the raigne of Numerianus, Emperor. The martyrdom of these saints was written by Verinus and Armenius, priests of St. Stephen, Pope and Martyr: Metaphrastes enlarged it somewhat more. St. Damasus made certain eloquent verses in praise of these saints, and set them on their tombe. There is mention of them also in the Romaine Martirologe, and in that of Usuardus: as also in the 5. tome of Surius; in Cardinal Baronius, and Gregory of Turonensis", p. 849.

A different abridgment of the story as given by Surius, is to be found in Ribadeneyra's *Flos Sanctorum* (the edition before me being that of *Barcelona*, 1790, t. 3. p. 304). It concludes with the same list of authorities, which, however, is given with more precision. The old English translation by W. P. Esq., second edition: London, 1730, p. 369, gives them thus:

"Surius in his fifth tome, and Cardinal Baronius in his *Annotations upon the Martyrologies*, and in the second tome of his *Annals*, and St. Gregory of Tours in his *Book of the Glory of the Martyrs*, make mention of the Saints Chrysanthus and Daria".

The following is taken from Caxton's *Golden Legende*, or translation of the *Legenda Aurea* of Jacobus de Voragine. I have transcribed from the following edition, which is thus described in the *Colophon*:

"The legende named in latyn *Legenda Aurea*, that is to say in englyshe *the golden legende*, For lyke as golde passeth all other metalles, so this boke exceedeth all other bokes". "Fynyshed the xxvii daye of August, the yere of our lord M. CCCCC. XXVII, the xix yere of the regne of our souverayne lord Kyng Henry the eyght. Imprynted at London in Flete Strete at the Sygne of the Sonne by Wynkyn de Worde".

In the following extract the spelling is somewhat modernised, and a few obsolete words are omitted.

"The Life of Saynt Crysant and Saynte Daria".

Fo. cc.lxxxv

"Here followeth the lyfe of Saynt Crysaunt, and fyrst of his name. And of Saynte Daria, and of her name.

"Of Crysaunt is said as growen and multyplied of God. For



when his father would have made hym do sacrifice to the idols, God gave to hym force and power to contrary and gaynsay his father, and yield himself to God. Daria is sayd of dare to give, for she gave her to two thynges. Fyrst will to do evil. when she had will to draw Crysaunt to sacrifice to the idols, And after she gave her to good will, when Crysaunt had converted her to Almighty God.

“Crysaunt was son of a ryght noble man that was named Polymne. And when his father saw that his son was taught in the faith of Jesu Chryst, and that he could not withdraw him therefrom, and make him do sacrifice to the idols, he commanded that he should be closed in a stronge hold and put to hym five maidens for to seduce him with blandyshynge and fayre wordes. And when he had prayed God that he should not be surmounted with no fleshly desyre, anon these maydens were so overcome with slepe, that they myght not take neither meat ne drinke as long as they were there, but as soon as they were out, they took both meat and drinke. And one Daria, a noble and wise virgin of the goddess Vesta, arrayed her nobly with clothes as she had been a goddess, and prayed that she myght be letten enter in to Crysant and that she would restore him to the idols and to his father. And when she was come in, Crysant reprovred her of the pride of her vesture. And she answered that she had not done it for pride but for to draw him to do sacrifice to the idols and restore him to his father. And then Crysant reprovred her because she worshipped them as gods. For they had been in their times evil and sinners. And Daria answered, the philosophers called the elements by the names of men. And Crysant said to her, if one worship the earth as a goddess, and another work and labour the earth as a churl or ploughman, to whom giveth the earth most? It is plain that it giveth more to the ploughman than to him that worshippeth it. And in like wise he said of the sea and of the other elements. And then Crysant and Daria converted to him, coupled them together by the grace of the Holy Ghost, and feigned to be joined by carnal marriage, and converted many others to our Lord. For Claudian, who had been one of their persecutors, they converted to the faith of our Lord, with his wife and children and many other knights. And after this Crysant was enclosed in a stinking prison by the commandment of Numerian, but the stink turned anon into a right sweet odour and savour. And Daria was brought to the bordel, but a lion that was in the amphitheatre came and kept the door of the bordel. And then there was sent thither a man to befoul and corrupt the virgin, but anon he was taken by the lion, and the lion began to look at

the virgin like as he demanded what he should do with the caitiff. And the virgin commanded that he should do him no hurt but let him go. And anon he was converted and ran through the city, and began to cry that Daria was a goddess. And then hunters were sent thither to take the lion. And they anon fell down at the feet of the virgin and were converted by her. And then the provost commanded them to make a great fire within the entrance of the bordel, so that the lion should be brent with Daria. And the lion considering this thing, felt dread, and roaring took leave of the virgin, and went whither he would without hurting of any body. And when the provost had done to Crysant and Daria many diverse torments, and might not grieve them, at the last they without compassion were put in a deep pit, and earth and stones thrown on them. And so were consecrated martyrs of Christ".

With regard to the exact year in which the martyrdom of SS. Chrysanthus and Daria took place, it may be mentioned that in the valuable *Vies des Saints*, Paris, 1701 (republished in 1739), where the whole legend undergoes a very critical examination, the generally received date, A.D. 284, is considered erroneous. The reign of the emperor Numerianus (A.D. 283-284), in which it is alleged to have occurred, lasted but eight months, during which period no persecution of the Christians is recorded. The writer in the work just quoted (Adrien Baillet) conjectures that the martyrdom of these saints took place in the reign of Valerian, and not later than the month of August, 257, "s' il est vray que le pape Saint Etienne qui mourut alors avoit donné ordre qu' on recueillît les actes de leur martyre"—*Les Vies des Saints*, Paris, 1739, t. vii. p. 385.

TO  
HENRY WADSWORTH LONGFELLOW,  
IN GRAEFUL RECOLLECTION OF SOME DELIGHTFUL DAYS SPENT WITH HIM AT  
ROME,

This Drama is dedicated

BY  
DENIS FLORENCE MAC-CARTHY.

~~~~~  
TO LONGFELLOW.

I.

PENSIVE within the Colosseum's walls  
I stood with thee, O Poet of the West!—  
The day when each had been a welcome guest  
In San Clemente's venerable halls:—  
Ah, with what pride my memory now recalls  
That hour of hours, that flower of all the rest,  
When with thy white beard falling on thy breast—  
That noble head, that well might serve as Paul's  
In some divinest vision of the saint  
By Raffael dreamed, I heard thee mourn the dead—  
The martyred host who fearless there, though faint,  
Walked the rough road that up to Heaven's gate led:  
These were the pictures Calderon loved to paint  
In golden hues that here perchance have fled.

II.

YET take the colder copy from my hand,  
Not for its own but for THE MASTER's sake,—  
Take it, as thou, returning home, wilt take  
From that divinest soft Italian land  
Fixed shadows of the Beautiful and Grand  
In sunless pictures that the sun doth make—  
Reflections that may pleasant memories wake  
Of all that Raffael touched, or Angelo planned:—  
As these may keep what memory else might lose,  
So may this photograph of verse impart  
An image, though without the native hues  
Of Calderon's fire, and yet with Calderon's art,  
Of what Thou lovest through a kindred Muse  
That sings in heaven, yet nestles in the heart.

D. F. M. C.

*Dublin, August 24, 1869.*



## THE TWO LOVERS OF HEAVEN.

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### PERSONS.

NUMERIANUS, Emperor of Rome.  
POLEMIUS, Chief Senator.  
CHRYSANTHUS, his son.  
CLAUDIUS, cousin of Chrysanthus.  
AURELIUS, a Roman general.  
CARPOPHORUS, a venerable priest.  
ESCARPIN, servant of Chrysanthus.  
DARIA, }  
CYNTHIA, } Priestesses of Diana.  
NISIDA, }  
CHLORIS, }  
*Two spirits.*  
*Angels.*  
*Soldiers, servants, people, music, etc.*

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SCENE: Rome and its environs.

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### ACT THE FIRST.

SCENE I.—*A Room in the house of Polemius at Rome.*

*Chrysanthus is seen seated near a writing table on which are several books: he is reading a small volume with deep attention.*

CHRYSANTHUS.

Ah! how shallow is my mind!  
How confined! and how restricted!<sup>3</sup>  
Ah! how driftless are my words!  
And my thoughts themselves how  
driftless!

Since I cannot comprehend,  
Cannot pierce the secrets hidden  
In this little book that I  
Found by chance with others mingled.  
Its meaning cannot reach,  
Howsoe'er my mind I rivet,  
Though to this, and this alone,  
Many a day has now been given.  
But I cannot therefore yield,  
Must not own myself outwitted:—  
No; a studious toil so great  
Should not end in aught so little.  
O'er this book my whole life long  
Shall I brood until the riddle  
Is made plain, or till some sage

---

<sup>3</sup> The whole of the first scene is in *asonante* verse, the vowels being *i, e*, as in "restricted", "driftless", "hidden", etc. These vowels, or their equivalents in sound, will be found pretty accurately represented in the last two syllables of every alternate line throughout the scene, which ends at p. 25, and where the verse changes into the full consonant rhyme.

Simplifies what here is written.  
 For which end I'll read once more  
 Its beginning. How my instinct  
 Uses the same word with which  
 Even the book itself beginneth!—  
 "In the beginning was the Word".<sup>4</sup>  
 If in language plain and simple  
 Word means speech, how then was it  
 In the beginning? Since a whisper  
 Presupposes power to breathe it,  
 Proves an earlier existence,  
 And to that anterior Power  
 Here the book doth not bear witness.  
 Then this follows: "And the Word  
 Was with God"—nay more, 't is writ-  
 ten,  
 "And the Word was God: was with  
 Him  
 In the beginning, and by Him then  
 All created things were made  
 And without Him naught was fin-  
 ished":—  
 Oh! what mysteries, what wonders,

In this tangled labyrinthine  
 Maze lie hid! which I so many  
 Years have studied, with such mingled  
 Aid from lore divine and human  
 Have in vain tried to unriddle!—  
 "In the beginning was the Word".—  
 Yes, but when was this beginning?  
 Was it when Jove, Neptune, Pluto  
 Shared the triple zones betwixt them,  
 When the one took to himself  
 Heaven supreme, one hell's abysses,  
 And the sea the third, to Ceres  
 Leaving earth, the ever-wingéd  
 Time to Saturn, fire to Phœbus,  
 And the air to Jove's great sister?<sup>5</sup>—  
 No, it could not have been then,  
 For the fact of their partition  
 Shows that heaven and earth then  
 were,  
 Shows that sea and land existed:—  
 The beginning then must be  
 Something more remote and distant:  
 He who has expressly said

---

<sup>4</sup> The resemblance between certain parts of Goethe's *Faust* and *The Wonder-Working Magician* of Calderon has been frequently alluded to, and has given rise to a good deal of discussion. In the controversy as to how much the German poet was indebted to the Spanish, I do not recollect any reference to *The Two Lovers of Heaven*. The following passage, however, both in its spirit and language, presents a singular likeness to the more elaborate discussion of the same difficulty in the text. The scene is in Faustus's study. Faustus, as in the present play, takes up a volume of the New Testament, and thus proceeds:

"IN THE BEGINNING WAS THE WORD". Alas!  
 The first line stops me: how shall I proceed?  
 "The word" cannot express the meaning here.  
 I must translate the passage differently,  
 If by the spirit I am rightly guided.  
 Once more,—*"IN THE BEGINNING WAS THE THOUGHT"*.—  
 Consider the first line attentively,  
 Lest hurrying on too fast, you lose the meaning.  
 Was it then *Thought* that has created all things?  
 Can thought make matter? Let us try the line  
 Once more,—*"IN THE BEGINNING WAS THE POWER"*.—  
 This will not do—even while I write the phrase,  
 I feel its faults—oh! help me, holy Spirit,  
 I'll weigh the passage once again, and write  
 Boldly,—*"IN THE BEGINNING WAS THE ACT"*.

Anster's *Faustus*, Francfort ed., 1841, p. 63.

<sup>5</sup> The same line of argument is worked out with wonderful subtlety of thought and beauty of poetical expression by Calderon, in one of the finest of his *Autos Sacramentales*, "The Sacred Parnassus". *Autos Sacramentales*, tom. vi. p. 10.

The beginning, must have hinted  
At the primal cause of all things,  
At the first and great beginning,  
All things growing out of HIM,  
He himself the pre-existent:—  
Yes, but then a new beginning  
Must we seek for this beginner,  
And so on *ad infinitum*;  
Since if I, on soaring pinion  
Seek from facts to rise to causes,  
Rising still from where I had risen,  
I will find at length there is  
No beginning to the beginning,  
And the inference that time  
Somehow *was*, ere time existed,  
And that that which ne'er begun  
Ne'er can end, is plain and simple.  
But, my thought, remain not here,  
Rest not in those narrow limits,  
But rise up with me and dare  
Heights that make the brain grow  
dizzy:—

And at once to enter there,  
Other things being pretermitted,  
Let us venture where the mind,  
As the darkness round it thickens,  
Almost faints as we resume  
What this mystic scribe has written.  
“And the Word”, this writer says,  
“Was made flesh!” Ah! how can  
*this be?*

Could the Word that in the beginning  
Was with God, was God, was gifted  
With such power as to make all things,  
Could it be made flesh? In pity,  
Heavens! or take from me at once  
All the sense that you have given me,  
Or at once on me bestow  
Some intelligence, some glimmer  
Of clear light through these dark sha-  
dows.—

Deity, unknown and hidden,  
God or Word, whate'er thou beest,  
Of Thyself the great beginner,  
Of Thyself the end, if, Thou  
Being Thyself beyond time's sickle,  
Still in time the world didst fashion,  
If Thou 'rt life, O living spirit,

If Thou 'rt light, my darkened senses  
With Thy life and light enkindle!—  
(*The voices of two spirits are heard from  
within, one at each side.*)

First Voice.

Hear, Chrysanthus . . .

Second Voice.

Listen . . .

CHRYSANTHUS.

Two

Voices, if they are not instincts,  
Shadows without soul or body,  
Which my fancy forms within me,  
Are contending in my bosom  
Each with each at the same instant.  
(*Two figures appear on high, one clothed  
in a dark robe dotted with stars; the  
other in a bright and beautiful mantle:  
Chrysanthus does not see them, but in  
the following scene ever speaks to  
himself*)

First Voice.

What this crabbed text here meaneth  
By the Word, is plain and simple,  
It is Jove to whose great voice  
Gods and men obedient listen.

CHRYSANTHUS.

Jove, it must be Jove, by whom  
Breath, speech, life itself are given.

Second Voice.

What the holy Gospel means  
By the Word, is that great Spirit  
Who was in Himself for ever,  
First, last, always self-existent.

CHRYSANTHUS.

Self-existent! first and last!  
Reason cannot grasp that dictum.

First Voice.

In the beginning of the world  
Jove in heaven his high throne *fixéd*,  
Leaving less imperial thrones  
To the other gods to fill them.

CHRYSANTHUS.

Yes, if *he* could not alone  
Rule creation unassisted.

Second Voice.

God was God, long, long before  
Earth or heaven's blue vault existed,



He was in Himself, ere He  
Gave to time its life and mission.

*First Voice.*

Worship only pay to Jove,  
God o'er all our gods uplifted.

*Second Voice.*

Worship pay to God alone,  
He the infinite, the omniscient.

*First Voice.*

He doth lord the world below.

*Second Voice.*

He is Lord of Heaven's high kingdom.

*First Voice.*

Shun the lightnings of his wrath.

*Second Voice.*

Seek the waves of his forgiveness.

[*The Figures disappear.*

CHRYSANTHUS.

Oh! what darkness, what confusion,  
In myself I find here pitted  
'Gainst each other! Spirits twain  
Struggle desperately within me,  
Spirits twain of good and ill,—  
One with gentle impulse wins me  
To believe, but, oh! the other  
With opposing force resistless  
Drives me back to doubt: Oh! who  
Will dispel these doubts that fill me?

POLEMUS (*within*).

Yes, Carpophorus must pay  
For the trouble that this gives me.—

CHRYSANTHUS.

Though these words by chance were  
spoken

As an omen I 'll admit them:  
Since Carpophorus (who in Rome  
Was the most renowned, most gifted  
Master in all science), now  
Flying from the emperor's lictors,  
Through suspect of being a Christian,  
In lone deserts wild and dismal  
Lives a saintly savage life,  
He will give to all my wishes  
The solution of these doubts:—  
And till then, O restless thinking  
Torture me and tease no more!

Let me live for that! [*His voice gradually rises.*

ESCARPIN (*within*).

Within there

My young master calls.

CLAUDIUS (*within*).

All enter.

(*Enter Polemius, Claudius, Aurelius,  
and Escarpin*).

POLEMUS.

My Chrysanthus, what afflicts thee?

CHRYSANTHUS.

Canst thou have been here, my father?

POLEMUS.

No, my son, 't was but this instant  
That I entered here, alarmed  
By the strange and sudden shrillness  
Of thy voice; and though I had  
On my hands important business,  
Grave and weighty, since to me  
Hath the Emperor transmitted  
This decree, which bids me search  
Through the mountains for the Chris-  
tians

Hidden there, and specially  
For Carpophorus, their admitted  
Chief and teacher, for which cause  
I my voice too thus uplifted—  
"Yes, Carpophorus must pay  
For the trouble that this gives me"—  
I left all at hearing thee.—  
Why so absent? so bewildered?  
What's the reason?

CHRYSANTHUS.

Sir, 't is naught.

POLEMUS.

Whom didst thou address?

CHRYSANTHUS.

Here sitting

I was reading to myself,  
And perchance conceived some image  
I may have addressed in words  
Which have from my memory flitted.

POLEMUS.

The grave sadness that o'erwhelms thee  
Will, unless it be resisted,  
Undermine thy understanding,  
If thou hast it still within thee.

CLAUDIUS.

'T is a loud soliloquy,

'T is a rather audible whisper  
That compels one's friends to hasten  
Full of fear to his assistance!

CHRYSANTHUS.

Well, excitement may . . .

POLEMIOUS.

Oh! cease;

That excuse will scarce acquit thee,  
Since when one 's alone, excitement  
Is a flame that 's seldom kindled.  
I am pleased, well pleased to see thee  
To the love of books addicted,  
But then application should not  
To extremes like this be driven,  
Nor should letters alienate thee  
From thy country, friends, and kins-  
men.

CLAUDIUS.

A young man by heaven so favoured,  
With such rare endowments gifted,  
Blessed with noble birth and valour,  
Dowered with genius, rank, and riches,  
Can he yield to such enthrallment,  
Can he make his room a prison,  
Can he waste in idle reading  
The fair flower of his existence?

POLEMIOUS.

Dost thou not remember also  
That thou art my son? Bethink thee  
That the great Numerianus,  
Our good emperor, has given me  
The grand government of Rome  
As chief senator of the city,  
And with that imperial burden  
The whole world too—all the kingdoms,  
All the provinces subjected  
To its varied, vast dominion.  
Know'st thou not, from Alexandria,  
From my native land, my birth-place,  
Where on many a proud escutcheon  
My ancestral fame is written,  
That he brought me here, the weight  
Of his great crown to bear with him,  
And that Rome upon my entry  
Gave to me a recognition  
That repaid the debt it owed me,  
Since the victories were admitted

Which in glorious alternation  
By my sword and pen were given her?  
Through what vanity, what folly,  
Wilt thou not enjoy thy birth-right  
As my son and heir, indulging  
Solely in these idle whimsies?—

CHRYSANTHUS.

Sir, the state in which you see me,  
This secluded room, this stillness,  
Do not spring from want of feeling,  
Or indifference to your wishes.  
'T is my natural disposition;  
For I have no taste to mingle  
In the vulgar vain pursuits  
Of the courtier crowds ambitious.  
And if living to myself here  
More of true enjoyment gives me,  
Why would you desire me seek for  
That which must my joys diminish?  
Let this time of sadness pass,  
Let these hours of lonely vigil,  
Then for fame and its applauses,  
Which no merit of my own,  
But my father's name may bring me.

POLEMIOUS.

Would it not, my son, be fitter  
That you should enjoy those plaudits  
In the fresh and blooming spring-time  
Of your life, and to hereafter  
Leave the loneliness and vigil?

ESCARPIN.

Let me tell a little story  
Which will make the whole thing  
simple:—  
A bad painter bought a house,  
Altogether a bad business,  
For the house itself was bad:  
He however was quite smitten  
With his purchase, and would show it  
To a friend of his, keen-witted,  
But bad also: when they entered,  
The first room was like a kitchen,  
Black and bad:—"This room, you see,  
sir,  
Now is bad, but just permit me  
First to have it whitewashed over,  
Then shall my own hand with pictures  
Paint the walls from floor to ceiling,

Then you 'll see how bright 't will  
glisten".—

To him thus his friend made answer,  
Smiling archly: "Yes, 't will glisten,  
But if you would paint it first,  
And then whitewash o'er the pictures,  
The effect would be much better".—  
Now 's the time for you, my lord,  
To lay on the shining pigment:  
On that brilliant ground hereafter  
Will the whitewash fall more fitly,  
For, in fine, the poorest painting  
Is improved by time's slow finger.

CHRYSANTHUS.

Sir, I say, that in obedience  
To your precepts, to your wishes,  
I will strive from this day forward  
So to act, that you will think me  
Changed into another being. [*Exit.*

POLEMIOUS.

Claudius, my paternal instinct  
Makes me fear Chrysanthus' sadness,  
Makes we tremble that its issue  
May result in total madness.  
Since thou art his friend and kins-  
man

Both combined, make out, I pray thee,  
What occasions this bewitchment,  
To the end that I may break it:  
And my promise now I give thee,  
That although I should discover  
Love's delirious dream delicious  
May be at the root,—most likely  
At his age the true suspicion,—  
It shall not disturb or grieve me.  
Nay, since I am doomed to witness  
His dejection, it will glad me  
To find out that so it springeth.

ESCARPIN.

Once a high priest of Apollo  
Had two nephews soft and silly,  
More than silly, wretched creatures,  
More than wretched, doltish drivels;  
And perceiving from experience  
How love smartens up its victims,  
He but said to them this only,  
"Fall in love at least, ye ninnies".—  
Thus, though not in love, sir, now,

I 'll be bound he 'll be so quickly,  
Merely to oblige you.

POLEMIOUS.

This  
Is not quite as I would wish it,  
For when anything has happened,  
The desire to know it, differs  
From the wish it so should happen.

CLAUDIUS.

I, my lord, my best assistance  
Offer thee to strive and fathom  
From what cause can have arisen  
Such dejection and such sadness;  
This henceforth shall be my business  
To divert him and distract him.

POLEMIOUS.

Such precisely are my wishes:  
And since now I am forced to go  
In obedience to the mission  
Sent me by Numerianus,  
'Mid the wastes to search for Chris-  
tians,  
In my absence, Claudius,  
Most consoling thoughts 't will give me,  
To remember that thou watchest  
O'er Chrysanthus.

CLAUDIUS.

From this instant  
Until thy return, I promise  
Not to leave his side.

POLEMIOUS.

Aurelius . . .

AURELIUS.

My good lord.

POLEMIOUS.

Art sure thou knowest  
In this mountain the well-hidden  
Cave wherein Carpophorus dwelleth?

AURELIUS.

Him I promise to deliver  
To thy hands.

POLEMIOUS.

Then lead the soldiers  
Stealthily and with all quickness  
To the spot, for all must perish  
Who are there found hiding with  
him:—  
For the care with which, ye Heavens!



I uphold the true religion  
Of the gods, their faith and worship,  
For the zeal that I exhibit  
In thus crushing Christ's new law,  
Which I hate with every instinct  
Of my soul, oh! grant my guerdon  
In the cure of my son's illness!

[*Exeunt Polemius and Aurelius.*]

CLAUDIUS (*to Escarpin*).

Go and tell my lord Chrysanthus  
That I wish he would come with me  
Forth to-day for relaxation.

ESCARPIN.

Relaxation! just say whither  
Are we to go forth to get it;  
Of that comfort I get little—

CLAUDIUS.

Outside Rome, Diana's temple  
On the Salarian way uplifteth  
Its majestic front: the fairest  
Of our Roman maids dwell in it:  
'T is the custom, as thou knowest,  
That the loveliest of Rome's children  
Whom patrician blood ennobles,  
From their tender years go thither  
To be priestesses of the goddess,  
Living there till 't is permitted  
They should marry: 't is the centre  
Of all charms, the magic circle  
Drawn around a land of beauty—  
Home of deities—Elysium!—  
And as great Diana is  
Goddess of the groves, her children  
Have to her an altar raised  
In the loveliest cool green thicket.  
Thither, when the evening falleth,  
And the season is propitious,  
Various squadrons of fair nymphs  
Hasten: and it is permitted  
Gallant youths, unmarried also,  
As an escort to go with them.  
There this evening will I lead him.

ESCARPIN.

Well, I doubt that your prescription  
Is the best: for fair recluses,  
Whose sublime pursuits, restricted  
To celestial things, make even  
The most innocent thought seem wicked,

Are by no means likely persons  
To divert a man afflicted  
With this melancholy madness:  
Better take him into the thickest  
Throng of Rome, there flesh and bone  
Goddesses he'll find, and fitter.—

CLAUDIUS.

Ah! you speak but as the vulgar:  
Is it not the bliss of blisses  
To adore some lovely being  
In the ideal, in the distance,  
Almost as a vision?—

ESCARPIN.

Yes;

'T is delightful; I admit it,  
But there's good and better: think  
Of the choice that once a simple  
Mother gave her son: she said:  
"Egg or rasher, which will I give  
thee?"

And he said: "The rasher, mother,  
But with the egg upon it, prithee".  
"Both are best", so says the proverb.

CLAUDIUS.

Well, if tastes did n't sometimes differ,  
What a notable mistake  
Providence would have committed!  
To adore thee, sweetest Cynthia, [*aside*  
Is the height of all my wishes:  
As it well may be, for *am* I  
Worthy, worship even to give her?

[*Exeunt.*]

#### SCENE THE SECOND

*A Wood near Rome.*

(*Enter NISIDA and CHLORIS, the latter  
with a lyre.*)

NISIDA.

Have you brought the instrument?

CHLORIS.

Yes.

NISIDA.

Then give it me, for here  
In this tranquil forest sphere,  
Where the boughs and blossoms blent,  
Ruby blooms and emerald stems,  
Round about their radiance fling,  
Where the canopy of spring

Breathes of flowers and gleams with  
gems,

Here I wish that air to play,  
Which to words that Cynthia wrote  
I have set—a simple note.

CHLORIS.

And the song, señora, say,  
What's the theme?

NISIDA.

A touching strain,—

How a nightingale in a grove  
Singing sweetly of his love,  
Sang its pleasure and its pain.

*Enter CYNTHIA (reading in a book).*

CYNTHIA (*to herself*).

Whilst each alley here discloses  
Youthful nymphs, who as they pass  
To Diana's shrine, the grass  
Turn to beds of fragrant roses,—  
Where the interlacéd bars  
Of these woods their beauty dowers  
Seem a verdant sky of flowers—  
Seem an azure field of stars.  
I shall here recline and read  
(While they wander through the grove)  
Ovid's *Remedy of Love*.

NISIDA (*to Chloris*).

Hear the words and air.

CHLORIS.

Proceed.

NISIDA (*singing*).

O nightingale, whose sweet exulting  
strain  
Tells of thy triumphs to the listening  
grove,  
Thou fill'st my heart with envy and  
with pain.  
But no; but no; for if thou sing'st of  
love,  
Jealousy's pangs and sorrow's tears  
remain.

CYNTHIA (*advancing*).

What a charming air! To me  
What an honour! From this day  
I may well be vain, as they  
May without presumption be,  
Who, despite their numerous slips,  
Find their words can please the ear,

Who their rugged verses hear  
Turn to music on thy lips.

NISIDA.

'T is thine own genius, not my skill,  
That produces this effect;  
For, without it, I suspect,  
Would my voice sound harsh and  
shrill,

And my lute's strings should be broken  
With a just and wholesome rigour,  
For presuming to disfigure  
What thy words so well have spoken.  
Whither wert thou wending here?

CYNTHIA.

Through the quiet wood proceeding,  
I the poet's book was reading,  
When there fell upon my ear,  
Soft and sweet, thy voice: its power,  
Gentle lodestone of my feet,  
Brought me to this green retreat—  
Led me to this lonely bower:  
But what wonder, when to listen  
To thy sweetly warbled words  
Ceased the music of the birds—  
Of the founts that glide and glisten?  
May I hope that, since I came  
Thus so opportunely near,  
I the gloss may also hear?

NISIDA.

I will sing it, though with shame.

(*Sings*)

Sweet nightingale, that from some  
echoing grot  
Singest the rapture of thy love aloud,  
Singest with voice so joyous and so proud,  
All unforgetting thou mayst be forgot,  
Full of thyself and of thy happy lot!  
Ah! when thou trillest that triumphant  
strain  
To all the listening lyrists of the grove,  
Thou fill'st my heart with envy and  
with pain!  
But no; but no; for if thou sing'st of love,  
Jealousy's pangs and sorrow's tears re-  
main!

*Enter DARIA.*

DARIA.

Ah! my Nisida, forbear,

Ah! those words forbear to sing,  
Which on zephyr's wanton wing  
Thou shouldst waft not on the air.  
All is wrong, how sweet it be,  
That the vestal's thoughts reprove:  
What is jealousy? what is love?  
That they should be sung by thee?  
Think this wood is consecrated  
To Diana's service solely,  
Not to Venus: it is holy.  
Why then wouldst thou desecrate it  
With thy songs? Does 't not amaze  
Thee thyself—this strangest thing—  
In Diana's grove to sing  
Hymns of love to Cupid's praise?  
But I need not wonder, no,  
That thou 'rt so amused, since I  
Here see Cynthia with thee.

CYNTHIA.

Why

Dost thou say so?

DARIA.

I say so

For good cause: in books profane  
Thou unceasingly delightest,  
Verse thou readest, verse thou writest,  
Of their very vanity vain.  
And if thou wouldst have me prove  
What I say to thy proceeding,  
Tell me, what 's this book thou 'rt  
reading?

CYNTHIA.

'T is *The Remedy of Love*.

Whence thou mayst perceive how weak  
Is thy inference, thy deduction  
From my studious self-instruction;  
Since the patient who doth seek  
Remedies to cure his pain  
Shows by this he *would* grow better;—  
For the slave who breaks his fetter  
Cannot surely love his chain.

NISIDA.

This, though not put quite so strong,  
Was involved in the conclusion  
Of my lay: Love's disillusion  
Was the burden of my song.

DARIA.

Remedies and disillusion,

Seek ye both beneath one star?  
Ah! if so, you are not far  
From its pains and its confusions:  
For the very fact of pleading  
Disillusion, shows that thou  
'Neath illusion's yoke doth bow,—  
And the patient who is needing  
Remedies doth prove that still  
The sharp pang he doth endure,  
For there 's no one seeks a cure  
Ere he feels that he is ill:—  
Therefore to this wrong proceeding  
Grieved am I to see ye clinging—  
Seeking *thou* thy cure in singing—  
*Thou* thy remedy in reading.

CYNTHIA.

Casual actions of this class  
That are done without intention  
Of a second end, to mention  
Here were out of place: I pass  
To another point: There 's no one  
Who *with* genius, or denied it,—  
Dowered with mind, but has applied it  
Some especial track to go on:  
This variety suffices  
For its exercise and action,  
Just as some by free attraction  
Seek the virtues and the vices;—  
This blind instinct, or this duty,  
We three share;—'t is *thy* delight  
Nisida to sing,—to write  
*Mine*,—and *thine* to adore thy beauty.  
Which of these three occupations  
Is the best—or those that need  
Skill and labour to succeed,  
Or thine own vain contemplations?—  
Have I not, when morning's rays  
Gladdened grove and vale and moun-  
tain,  
Seen thee in the crystal fountain  
At thyself enamoured gaze?  
Wherefore, once again returning  
To our argument of love,  
Thou a greater pang must prove,  
If from thy insatiate yearning  
I infer a cause: the spell  
Lighter falls on one who still,  
To herself not feeling ill,



Would in other eyes seem well.

DARIA.

Ah! so far, so far from me  
Is the wish as vain as weak—  
(Now my virtue doth not speak,  
Now but speaks my vanity),  
Ah! so far, I say, my breast  
Turns away from things of love,  
That the sovereign hand of Jove,  
Were it to attempt its best,  
Could no greater wonder work,  
Than that I, Daria, should  
So be changed in mind and mood  
As to let within me lurk  
Love's minutest, smallest seed:—  
Only upon one condition  
Could I love, and that fruition  
Then would be my pride indeed.

CYNTHIA.

What may that condition be?

DARIA.

When of all mankind, I knew  
One who felt a love so true  
As to give his life for me,  
Then, until my own life fled,  
Him, with gratitude and pride,  
Were I sure that so he died,  
I would love though he were dead.

NISIDA.

Poor reward for love so great  
Were that tardy recollection,  
Since, it seems, for thy affection  
He, till life is o'er, must wait.

CYNTHIA.

Soars thy vanity so high?  
Thy presumption is above  
All belief: be sure, for love  
No man will be found to die.

DARIA.

Why more words then? love must be  
In my case denied by heaven:  
Since my love cannot be given  
Save to one who 'll die for me.

CYNTHIA.

Thy ambition is a thing  
So sublime, what *can* be said?—  
Better I resumed and read,  
Better, Nisida, thou shouldst sing,

This disdain so strange and strong,  
This delusion little heeding.

NISIDA.

Yes, do thou resume thy reading,  
I too will resume my song.

DARIA.

I, that I may not renew  
Such reproaches, whilst you sing,  
Whilst you read, in this clear spring  
Thoughtfully myself shall view.

NISIDA sings.

O nightingale, whose sweet exulting  
strain  
Tells of thy triumphs to the listening  
grove,  
Thou fill'st my heart with envy and  
with pain!—  
But no, but no, for if thou sing'st of  
love

Jealousy's pangs and sorrow's tears  
remain!

*Enter CHRYSANTHUS, CLAUDIUS, and  
ESCARPIN.*

CLAUDIUS, to *Chrysanthus*.

Does not the beauty of this wood,  
This tranquil wood, delight thee?

CHRYSANTHUS.

Yes:

Here nature's lord doth dower and  
bless  
The world in most indulgent mood.  
Who could believe this greenwood here  
For the first time has blessed mine  
eyes?

CLAUDIUS.

It is the second Paradise,  
Of deities the verdant sphere.

CHRYSANTHUS.

'T is more, this green and grassy glade  
Whither our careless steps have strolled,  
For here three objects we behold  
Equally fair by distance made.  
Of these that chain our willing feet,  
There yonder where the path is lead-  
ing,  
One is a lady calmly reading,  
One is a lady singing sweet,  
And one whose rapt though idle air

Gives us to understand this truth—  
A woman blessed with charms and  
youth,  
Does quite enough in being fair.

ESCARPIN.

You are quite right in that, I've seen  
Beauties enough of that sort too.

CLAUDIUS.

If of the three here given to view,  
The choice were thine to choose be-  
tween,  
Which of them best would suit thy  
taste?  
Which wouldst thou make thy choice  
of, say?

CHRYSANTHUS.

I do not know: for in one way  
They so with equal gifts are graced,  
So musical and fair and wise,  
That while one captivates the mind,  
One works her witcheries with the  
wind,  
And one, the fairest, charms our eyes.  
The one who sings, it seems a duty,  
Trusting her sweet voice, to think  
sweet,  
The one who reads, to deem discreet,  
The third, we judge but by her beauty:  
And so I fear by act or word  
To wrong the three by judging ill,  
Of one her charms, of one her skill,  
And the intelligence of the third.  
For to choose *one* does wrong to two,  
But if I so presumed to dare . . .

CLAUDIUS.

Which would it be?

CHRYSANTHUS.

The one that's fair.

ESCARPIN.

My blessings on your choice and you!  
That's my opinion in the case,  
'T is plain at least to my discerning  
That in a woman wit and learning  
Are nothing to a pretty face.

NISIDA.

Chloris, quick, take up the lyre,  
For a rustling noise I hear  
In this shady thicket near:

Yes, I'm right, I must retire.  
Swift as feet can fly I'll go.  
For these men that here have strayed  
Must have heard me while I played.

[*Exeunt Nisida and Chloris.*

CYNTHIA.

One of them I think I know.  
Yes, 't is Claudius, as I thought,  
Now he has a chance: I'll see  
If he cares to follow me,  
Guessing rightly what has brought  
Me to-day unto the grove:—  
Ah! if love to grief is leading  
Of what use to me is reading  
In the *Remedies of Love*? [Exit.

DARIA (*to herself*).

In these bowers by trees o'ergrown,  
Here contented I remain,  
All companionship is vain,  
Save my own sweet thoughts alone:—

CLAUDIUS.

Dear Chrysanthus, your election  
Was to me both loss and gain,  
Gave me pleasure, gave me pain:—  
It seemed plain to my affection  
(Being in love) your choice should fall  
On the maid of pensive look,  
Not on her who read the book:  
But your praise made up for all.  
And since each has equal force,  
My complaint and gratulation,  
Whilst with trembling expectation  
I pursue my own love's course,  
Try your fortune too, till we  
Meet again. [Exit.

CHRYSANTHUS.

Confused I stay,

Without power to go away,  
Spirit-bound, my feet not free.  
From the instant that on me,  
As a sudden beam might dart,  
Flashed that form which Phidian art  
Could not reach, I've known no rest.—  
Babylon is in my breast—  
Troy is burning in my heart.

ESCARPIN.

Strange that I should feel as you,  
That one thought should fire us two,

I too, sir, have lost my senses  
Since I saw that lady.

CHRYSANTHUS.

Who,  
Madman! fool! do you speak of? *you!*  
Dare to feel those griefs of mine!—

ESCARPIN.

No, sir, yours I quite resign,  
Would I could my own ones too!—

CHRYSANTHUS.

Leave me, or my wrath you 'll rue;  
Hence! buffoon: by heaven I swear it,  
I will kill you else.

ESCARPIN.

I go:—

For if you address her, oh!  
Could my jealous bosom bear it? [*aside*  
[*Exit.*

CHRYSANTHUS (*to Daria*).

If my boldness so may dare it,  
I desire to ask, señora,  
If thou art this heaven's Aurora,  
If the goddess of this fountain,  
If the Juno of this mountain,  
If of these bright flowers the Flora,  
So that I may rightly know  
In what style should speak to thee  
My hushed voice . . . but pardon me  
Now I would not thou said'st so.  
Looking at thee now, the glow  
Of thy beauty so excelleth,  
Every charm so plainly telleth  
Thou Diana's self must be;  
Yes, Diana's self is she,  
Who within her grove here dwelleth.

DARIA.

If, before you spoke to me,  
You desired my name to know,  
I in *your* case act not so,  
Since I speak, whoe'er you be,  
Forced, but most unwillingly  
(As to listening heaven is plain)  
To reply:—a bootless task  
Were it in me, indeed, to ask,  
Since, whoe'er you be, my strain  
Must be one of proud disdain.  
So I pray you, cavalier,  
Leave me in this lonely wood,

Leave me in the solitude  
I enjoyed ere you came here.

CHRYSANTHUS.

Sweetly, but with tone severe,  
Thus my error you reprove—  
That of asking in this grove  
What your name is: you're so fair,  
That, whatever name you bear,  
I must tell you of my love.

DARIA.

Love! a word to me unknown,  
Sounds so strangely in my ears,  
That my heart nor feels nor hears  
Aught of it when it has flown.

CHRYSANTHUS.

Then there is no rashness shown  
In repeating it once more,  
Since to hear or to ignore  
Suits alike your stoic coldness.

DARIA.

Yes, the speech, but not the boldness  
Of the speaker I pass o'er,  
For this word, whate'er it be,  
When it breaks upon my ear,  
Quick 't is gone, although I hear.

CHRYSANTHUS.

You forget it?

DARIA.

Instantly.

CHRYSANTHUS.

What! love's sweetest word! ah, me!  
Canst forget the mightiest ray  
Death can dart, or heaven display?

DARIA.

Yes, for lightning, entering where  
Naught resists, is lost in air.

CHRYSANTHUS.

How? what way?

DARIA.

Well, in this way:

If two doors in one straight line  
Open lie, and lightning falls,  
Then the bolt between the walls  
Passes through, and leaves no sign.  
So 't is with this word of thine;  
Though love be, which I do n't doubt,  
Like heaven's bolt that darts about,  
Still two opposite doors I've here,



And what enters by one ear  
By the other ear goes out.

CHRYSANTHUS.

If this lightning then darts through  
Where no door lies open wide  
To let it pass at the other side,  
Must not fire and flame ensue?  
This being so, 't is also true  
That the fire of love that flies  
Into my heart, in flames must rise,  
Since without its feast of fire  
The fatal flash cannot retire,  
That has entered by the eyes.

DARIA.

If to what I said but now  
You had listened, I believe  
You would have preferred to leave  
Still unspoken love's vain vow.  
This you would yourself allow.

CHRYSANTHUS.

What then was it?

DARIA.

I do n't know:

Something 't was that typified  
My presumption and my pride.

CHRYSANTHUS.

Let me know it even so.

DARIA.

That in me no love could grow  
Save for one who first would die  
For my love.

CHRYSANTHUS.

And death being past,  
Would he win your love at last?—

DARIA.

Yes, on that he might rely.

CHRYSANTHUS.

Then I plight my troth that I  
Will to that reward aspire,—  
A poor offering at the fire  
By those beauteous eyes supplied.

DARIA.

But as you have not yet died,  
Pray don't follow me, but retire. [*Exit.*]

CHRYSANTHUS.

In what bosom, at one moment,  
Oh! ye heavens! e'er met together<sup>6</sup>  
Such a host of anxious troubles?  
Such a crowd of boding terrors?  
Can I be the same calm student  
Who awhile ago here wended?  
To a miracle of beauty,  
To a fair face now surrendered,  
I scarce know what brought me hither,  
I my purpose scarce remember.  
What bewitchment, what enchantment,  
What strange lethargy, what frenzy  
Can have to my heart, those eyes  
Such divine delirium sent me?  
What divinity, desirous  
That I should not know the endless  
Mysteries of the book I carry,  
In my path such snares presenteth,  
Seeking from these serious studies  
To distract me and divert me?  
But what 's this I say? One passion  
Accidentally developed,  
Should not be enough, no, no,  
From myself myself to sever.  
If the violence of one star  
Draws me to a deity's service,  
It compels not; for the planets  
Draw, but force not, the affections.  
Free is yet my will, my mind too,  
Free is still my heart: then let me  
Try to solve more noble problems  
Than the doubts that love presenteth,  
And since Claudius, the new Clytie<sup>7</sup>  
Of the sun, whose golden tresses  
Lead him in pursuit, her footsteps  
Follows through the wood, my servant  
Having happily too departed,

<sup>6</sup> The metre reverts here again to the asonante form, which is kept up for the remainder of this act. The vowels here used are *e*, *e*, or their equivalents.

<sup>7</sup> "This Clytie knew, and knew she was undone,  
Whose soul was fix'd, and doted on the sun".

OVID, *Metamorphoses*, b. iv.

And since yonder rocks where endeth  
 The dark wood in savage wildness  
 Must be the rude rustic shelter  
 Of the Christians who fled thither,  
 I'll approach them to endeavour  
 To find there Carpophorus:—  
 He alone, the wise, the learnéd,  
 Can my understanding rescue  
 From its night-mare dreams and  
 guesses. [Exit.]

SCENE III. *The extremity of the wood:  
 wild rocks with the entrance to a cave.  
 Carpophorus comes forth from the  
 cave, but is for a while unseen by Chry-  
 santhus, who enters.*

CHRYSANTHUS.

What a labyrinthine thicket  
 Is this place that I have entered!  
 Nature here takes little trouble,  
 Letting it be seen how perfect  
 Is the beauty that arises  
 Even from nature's careless efforts:  
 Deep within this darksome grotto  
 Which no sunbeam's light can enter,  
 I shall penetrate: it seemeth  
 As if until now it never  
 Had been trod by human footsteps.  
 There where yonder marge impendeth  
 O'er a streamlet that swift-flying  
 Carries with it the white freshness  
 Of the snows that from the mountains  
 Ever in its waves are melted,  
 Stands almost a skeleton;  
 The sole difference it presenteth  
 To the tree-trunks near it is,  
 That it moves as well as trembles,  
 Slow and gaunt, a living corse.  
 Oh! thou venerable elder  
 Who, a reason-gifted tree,  
 Mid mere natural trees here dwelleth.—

CARPOPHORUS.

Wo! oh! wo is me!—a Roman!  
 (*At seeing Chrysanthus, he attempts to fly.*)

CHRYSANTHUS.

Though a Roman, do not dread me:  
 With no evil end I seek thee.

CARPOPHORUS.

Then what wouldst thou have, thou  
 gentle  
 Roman youth? for thou hast silenced  
 My first fears even by thy presence.

CHRYSANTHUS.

'T is to ask, what now I ask thee,  
 Of the rocks that in this desert  
 Gape for ever open wide  
 In eternal yawns incessant,  
 Which is the rough marble tomb  
 Of a living corse interred here?  
 Which of these dark caves is that  
 In whose gloom Carpophorus dwell-  
 eth?

'T is important I speak with him.

CARPOPHORUS.

Then, regarding not the perils,  
 I will own it. I myself  
 Am Carpophorus.

CHRYSANTHUS.

Oh! let me,

Father, feel thy arms enfold me.

CARPOPHORUS.

To my heart: for as I press thee,  
 How, I know not, the mere contact  
 Brings me back again the freshness  
 And the greenness of my youth,  
 Like the vine's embracing tendrils  
 Twining round an aged tree:  
 Gallant youth, who art thou? tell me.

CHRYSANTHUS.

Father, I am called Chrysanthus,  
 Of Polemius, the first member  
 Of the Roman senate, son.

CARPOPHORUS.

And thy purpose?

CHRYSANTHUS.

It distresses

Me to see thee standing thus:  
 On this bank sit down and rest thee.

CARPOPHORUS.

Kindly thought of; for, alas!  
 I a tottering wall resemble:

At the mouth of this my cave  
 Let us then sit down together. [*They  
 sit down.*]

What now wouldst thou have, Sir  
Stranger?

CHRYSANTHUS.

Sir, as long as I remember,  
I have felt an inclination  
To the love of books and letters.  
In my casual studies lately  
I a difficulty met with  
That I could not solve, and knowing  
No one in all Rome more learnéd  
Than thyself (thy reputation  
Having with this truth impressed me)  
I have hither come to ask thee  
To explain to me this sentence:  
For I cannot understand it.  
'T is, sir, in this book.

CARPOPHORUS.

Pray, let me

See it then.

CHRYSANTHUS.

'T is at the beginning;

Nay, the sentence that perplexes  
Me so much is *that*.

CARPOPHORUS.

Why, these

Are the Holy Gospels! Heavens!

CHRYSANTHUS.

What! you kiss the book?

CARPOPHORUS.

And press it

To my forehead, thus suggesting  
The profound respect with which  
I even touch so great a treasure.

CHRYSANTHUS.

Why, what is the book, which I  
By mere accident selected?

CARPOPHORUS.

'T is the basis, the foundation  
Of the Scripture Law.

CHRYSANTHUS.

I tremble

With an unknown horror.

CARPOPHORUS.

Why?

CHRYSANTHUS.

Deeper now I would not enter  
Into the secrets of a book  
Which are magic spells, I'm certain.

VOL. V.

CARPOPHORUS.

No, not so, but vital truths.

CHRYSANTHUS.

How can *that* be, when its verses  
Open with this line that says  
(A beginning surely senseless)  
"In the beginning was the Word,  
And it was with God": and *then* it  
Adds: this Word itself was God;  
Then unto the Word reverting,  
Says explicitly that It  
"Was made flesh"?

CARPOPHORUS.

A truth most certain:

For this first evangelist  
Here to us our God presenteth  
In a twofold way: the first  
As being God, as Man the second.

CHRYSANTHUS.

God and Man combined together?

CARPOPHORUS.

Yes, in one eternal Person  
Are both natures joined together.

CHRYSANTHUS.

Then, for this is what more presses  
On my mind, can that same Word  
When it was made flesh, be reckoned  
God?

CARPOPHORUS.

Yes, God and Man is Christ  
Crucified for our transgressions.

CHRYSANTHUS.

Pray explain this wondrous problem.

CARPOPHORUS.

He is God, because He never  
Was created: He is the Word,  
For, besides, He was engendered  
By the Father, from both whom  
In eternal due procession  
Comes the Holy Ghost, three Persons,  
But one God, thrice mystic emblem!—  
In the Catholic faith we hold  
In one Trinity one God dwelleth,  
And that in one God is also  
One sole Trinity, ever blesséd,  
Which confounds not the three Persons,  
Nor the single substance severs.  
One is the person of the Father,



One the Son's, beloved for ever,  
 One, the third, the Holy Ghost's.  
 But though three, you must remember  
 That in the Father, and in the Son,  
 And in the Holy Ghost . . .

CHRYSANTHUS.

Unheard of  
 Mysteries these!

CARPOPHORUS.

There 's but one God,  
 Equal in the power exerted,  
 Equal in the state and glory ;  
 For . . .

CHRYSANTHUS.

I listen, but I tremble.

CARPOPHORUS.

The eternal Father is  
 Limitless, even so unmeasured  
 And eternal is the Son,  
 And unmeasured and eternal  
 Is the Holy Ghost ; but then  
 Three eternities are not meant here,  
 Three immensities, no, but One,  
 Who is limitless and eternal.  
 For though increate the three,  
 They are but one Uncreated.  
 First the Father was not made,  
 Or created, or engendered ;  
 Then engendered was the Son  
 By the Father, not created ;  
 And the Spirit was not made  
 Or created, or engendered  
 By the Father or the Son,  
 But proceeds from both together.  
 This is God's divinity  
 Viewed as God alone, let 's enter  
 On the human aspect.

CHRYSANTHUS.

Stay :

For so strange, so unexpected  
 Are the things you say, that I  
 Need for their due thought some leisure.  
 Let me my lost breath regain,  
 For entranced, aroused, suspended,  
 Spell-bound your strong reasons hold  
 me.

Is there then but one sole God  
 In three Persons, one in essence,

One in substance, one in power,  
 One in will?

CARPOPHORUS.

My son, 't is certain.

(*Enter Aurelius and Soldiers.*)

AURELIUS to the Soldiers.

Yonder is the secret cavern  
 Of Carpophorus, at its entrance  
 See him seated with another  
 Reading.

A SOLDIER.

Why delay?

Arrest them.

AURELIUS.

Recollect Polemius bade us,  
 When we seized them, to envelope  
 Each one's face, that so, the Christians,  
 Their accomplices and fellows,  
 Should not know or recognize them.

A SOLDIER.

You 're our prisoners.

[*A veil is thrown over the head of each*]

CHRYSANTHUS!

What! base wretches . . .

AURELIUS.

Gag their mouths.

CHRYSANTHUS.

But then I am . . .

AURELIUS.

Come, no words: now tie together  
 Both their hands behind their backs.

CHRYSANTHUS.

Why I am . . .

CARPOPHORUS.

Oh! sacred heaven!

Now my wished-for day has come.

A VOICE FROM HEAVEN.

No, not yet, my faithful servant:—  
 I desire the constancy  
 Of Chrysanthus may be tested:—  
 Heed not him, as for thyself,  
 In this manner I preserve thee.

[*Carpophorus disappears.*]

(*Enter Polemius.*)

POLEMIUS.

What has happened?

AURELIUS.

Oh! a wonder.—

We Carpophorus arrested,  
And with him this other Christian;  
Both we held here bound and fet-  
tered,  
When from out our hands he vanished.

POLEMIOUS.

By some sorcery 't was effected,  
For those Christians use enchantments,  
And then miracles pretend them.

A SOLDIER.

See, a crowd of them there flying  
To the mountains.

POLEMIOUS.

Intercept them,  
And secure the rabble rout;  
This one I shall guard myself here:—

[*Ereunt Aurelius and soldiers.*]

Miserable wretch! who art thou?  
Thus that I may know thee better,  
Judging from thy face thy crimes,  
I unveil thee. Gracious heaven!  
My own son!

CHRYSANTHUS.

Oh! heavens! my father!

POLEMIOUS.

Thou with Christians here detected?  
Thou here in their caverns hidden?  
Thou a prisoner? Wherefore, where-  
fore,  
O immense and mighty Jove,  
Are thy angry bolts suspended?

CHRYSANTHUS.

'T was to solve a certain doubt  
Which some books of thine presented,  
That I sought Carpophorus,  
That I wandered to these deserts,  
And . . .

POLEMIOUS.

Cease, cease; for now I see  
What has led to this adventure:  
Thou unhappily art gifted  
With a genius ill-directed;  
For I count as vain and foolish  
All the lore that lettered leisure  
Has in human books e'er written;  
But this passion has possessed thee,  
And to learn their magic rites  
Here, a willing slave, has led thee.

CHRYSANTHUS.

No, not magic was the knowledge  
I came here to learn—far better—  
The high mysteries of a faith  
Which I reverence, while I dread them.

POLEMIOUS.

Cease, oh! cease once more, nor let  
Such vile treason find expression  
On thy lips. What! thou to praise  
them!

AURELIUS (*within*).

Yonder wait the two together.

POLEMIOUS.

Cover up thy face once more,  
That the soldiers, when they enter,  
May not know thee, may not know  
How my honour is affected  
By this act, until I try  
Means more powerful to preserve it.

CHRYSANTHUS (*aside*).

God, whom until now I knew not,  
Grant Thy favour, deign to help me:  
Grant through suffering and through  
sorrow

I may come to know Thee better.

(*Enter Aurelius and Soldiers.*)

AURELIUS.

Though we searched the whole of the  
mountain,

Not one more have we arrested.

POLEMIOUS.

Take this prisoner here to Rome,  
And be sure that you remember  
All of you my strict commands,  
That no hand shall dare divest him  
Of his veil:— [*Chrysanthus is led out.*]  
Why, why, O heavens! [*a-side.*]  
Do I pause, but from my breast here  
Tear my bleeding heart? How act  
In so dreadful a dilemma?  
If I say who he is, I tarnish  
With his guilt my name for ever,  
And my loyalty if I'm silent,  
Since he being here transgresses  
By that fact alone the edict:  
Shall I punish him? The offender  
Is my son. Shall I free him? He  
Is my enemy and a rebel:—

If between these two extremes  
Some mean lies, I cannot guess it.  
As a father I must love him,  
And as a judge I must condemn him.

[*Exeunt.*]

## ACT THE SECOND.

### SCENE I.

*A hall in the house of Polemius.*

*Enter Claudius and Escarpin.*

CLAUDIUS.

Has he not returned? Can no one  
Guess in the remotest manner<sup>s</sup>  
Where he is?

ESCARPIN.

Sir, since the day  
That you left me with my master  
In Diana's grove, and I  
Had with that divinest charmer  
To leave *him*, no eye has seen him.  
Love alone knows how it mads me.

CLAUDIUS.

Of your loyalty I doubt not.

ESCARPIN.

Loyalty 's a different matter,  
"T is not wholly that.

CLAUDIUS.

What then?

ESCARPIN.

Dark suspicions, dismal fancies,  
That perhaps to live with her  
He lies hid within those gardens.

CLAUDIUS.

If I could imagine that,  
I, Escarpin, would be gladdened  
Rather than depressed.

ESCARPIN.

I 'm *not*:—

I am filled, like a full barrel,  
With depressions.

CLAUDIUS.

And for what?

ESCARPIN.

Certain wild chimeras haunt me,  
Jealousy doth tear my heart,  
And despairing love distracts me.

CLAUDIUS.

You in love and jealous?

ESCARPIN.

I

Jealous and in love. Why marvel?  
Am I such a monster?

CLAUDIUS.

What!

With Daria?

ESCARPIN.

'T is no matter

What her name is, or Daria  
Or Maria, I would have her  
Both subjective and subjunctive,  
She verb passive, I verb active.

CLAUDIUS.

You to love so rare a beauty?

ESCARPIN.

Yes, her beauty, though uncommon,  
Would lack something, if it had not  
My devotion.

CLAUDIUS.

How? explain:—

ESCARPIN.

Well, I prove it in this manner:—  
Mr. Dullard fell in love  
(I do n't tell where all this happened,  
Or the time, for of the Dullards  
Every age and time give samples)  
With a very lovely lady:  
At her coach-door as he chattered  
One fine evening, he such nonsense  
Talked, that one who heard his clat-  
ter,

Asked the lady in amazement  
If this simpleton's advances  
Did not make her doubt her beauty?—  
But she quite gallantly answered,  
Never until now have I  
Felt so proud of my attractions,  
For no beauty can be perfect  
That all sorts of men do n't flatter.

CLAUDIUS.

What a feeble jest!

ESCARPIN.

This feeble?—



CLAUDIUS.

Yes, the very type of flatness:—  
Cease buffooning, for my uncle  
Here is coming.

ESCARPIN.

Of his sadness  
Plainly is his face the mirror.

*Enter Polemius and servants.*

CLAUDIUS.

Jupiter doth know the anguish,  
My good lord, with which I venture  
To approach thee since this happened.

POLEMIUS.

Claudius, as thine own, I'm sure,  
Thou dost feel this great disaster.

CLAUDIUS.

I my promise gave thee that  
To Chrysanthus . . .

POLEMIUS.

Cease; I ask thee  
Not to proffer these excuses,  
Since I do not care to have them.

CLAUDIUS.

Then it seems that all thy efforts  
Have been useless to unravel  
The strange mystery of his fate?

POLEMIUS.

With these questions do not rack me;  
For, though I would rather not  
Give the answer, still the answer  
Rises with such ready aptness  
To my lips from out my heart,  
That I scarcely can withstand it.

CLAUDIUS.

Why conceal it then from me,  
Knowing that thy blood meanders  
Through my veins, and that my life  
Owns thee as its lord and master?—  
Oh! my lord, confide in me,  
Let thy tongue speak once the lan-  
guage  
That thine eyes so oft have spoken.

POLEMIUS.

Let the servants leave the apartment.

ESCARPIN (*aside*).

Ah! if beautiful Daria  
Would but favour my attachment,  
Though I have no house to give her,

Lots of stories I can grant her:—

[*Exeunt Escarpin and servants.*]

CLAUDIUS.

Now, my lord, we are alone.

POLEMIUS.

Listen then; for though to baffle  
Thy desire were my intention,  
By my miseries overmastered,  
I am forced to tell my secret;  
Not so much have I been granted  
License to avow my sufferings,  
But I am, as 't were commanded  
Thus to break my painful silence,  
Doing honestly, though sadly,  
Willingly the fact disclosing,  
Which by force had been extracted.  
Hear it, Claudius: my Chrysanthus,  
My Chrysanthus is not absent:  
In this very house he's living!—  
Would the gods, ah! me, had rather  
Made a tomb and not a prison  
Of his present locked apartment!  
Which is in this house, within it  
Is he prisoned, chained, made captive.  
This surprises thee, no wonder:  
More surprised thou 'lt be hereafter,  
When thou com'st to know the reason  
Of a fact so strange and startling.  
On that fatal day, when I  
Sought the mount and thou the gar-  
den,  
Him I found where thou didst lose  
him,  
Near the wood where he had rambled:  
He was taken by my soldiers  
At the entrance of a cavern,  
With Carpophorus:—oh! here  
Patience, patience may heaven grant  
me!—  
It was lucky that they did not  
See his face, for thus it happened  
That the front of my dishonour  
Was not in his face made patent:  
Him they captured without knowing  
Who he was, it being commanded  
That the faces of the prisoners  
Should be covered, but ere captured  
This effectually was done

By themselves, they flying backward  
 With averted faces; he  
 Thus was taken, but his partner,  
 That strange prodigy of Rome—  
 Man in mind, wild beast in manners,  
 Doubly thus a prodigy—  
 Saved himself by power of magic.  
 Thus Chrysanthus was sole prisoner,  
 While the Christian crowd, disheart-  
   ened,  
 Fled for safety to the mountains  
 From their grottoes and their caverns.  
 These the soldiers quickly followed,  
 And behind in that abandoned  
 Savage place remained but two—  
 Two, oh! think, a son and father.—  
 One a judge, too, in a cause  
 Wicked, bad, beyond example,  
 In a cause that outraged Caesar,  
 And the gods themselves disparaged.  
 There with a delinquent son  
 Stood I, therefore this should hap-  
   pen,  
 That both clemency and rigour  
 In my heart waged fearful battle—  
 Clemency in fine had won,  
 I would have removed the bandage  
 From his eyes and let him fly,  
 But that instant, ah! unhappy!  
 Came the soldiers back, and then  
 It were but more misery added,  
 If they knew of my connivance:  
 All that then my care could manage  
 To protect him was the secret  
 Of his name to keep well guarded.  
 Thus to Rome I brought him prisoner,  
 Where pretending great exactness,  
 That his friends should not discover  
 Where this Christian malefactor  
 Was imprisoned, to this house,  
 To my own house, I commanded  
 That he should be brought; there hid-  
   den  
 And unknown, a few days after  
 I in *his* place substituted . . .  
 Ah! what will not the untrammelled  
 Strength of arbitrary power  
 Dare attempt? what law not trample?

Substituted, I repeat,  
 For my son a slave, whose strangled,  
 Headless corse thus paid the debt  
 Which from me were else exacted.  
 You will say, "Since fortune thus  
 Has the debt so happily cancelled,  
 Why imprison or conceal him?"—  
 And, thus, full of doubts, I answer  
 That though it is true I wished not,  
 Woe is me! the common scaffold  
 Should his punishment make public,  
 I as little wished his hardened  
 Heart should know my love and pity  
 Since it did not fear my anger:  
 Ah! believe me, Claudius,  
 'Twixt the chastisement a father  
 And an executioner gives,  
 A great difference must be granted:  
 One hand honours what it striketh,  
 One disgraces, blights, and blackens.  
 Soon my rigour ceased, for truly,  
 In a father's heart it lasteth  
 Seldom long: but then what wonder,  
 If the hand that in its anger  
 Smites his son, in his own breast  
 Leaves a wound that ever rankles—  
 I one day his prison entered  
 With the wish (I own it frankly)  
 To forgive him, and when I  
 Thought he would have even thanked  
   me  
 For receiving a reproof,  
 Not severe, too lenient rather,  
 He began to praise the Christians  
 With such earnestness and ardour,  
 In defence of their new law,  
 That my clemency departed,  
 And my angrier mood returned.  
 I his doors and windows fastened.  
 In the room where he is lying,  
 Well secured by gyves and shackles,  
 Sparingly his food is given him,  
 Through my hands alone it passes,  
 For I dare not to another  
 Trust the care his state demandeth.  
 You will think in this I reached to  
 The extreme of my disasters—  
 The full limits of misfortune,

But not so, and if you hearken,  
 You 'll perceive they 're but beginning,  
 And not ended, as you fancied.  
 All these strange events so much  
 Have unnerved him and unmanned  
 him,  
 That, forgetful of himself,  
 Of himself he is regardless.  
 Nothing to the purpose speaks he.  
 In his incoherent language  
 Frenzy shows itself, delusion  
 In his thoughts and in his fancies:—  
 Many times I've listened to him,  
 Since so high-strung and abstracted  
 Is his mind, he takes no note of  
 Who goes in or who departeth.  
 Once I heard him deprecating  
 Some despotic beauty's hardness,  
 Saying, "Since I die for thee,  
 Thou thy favour sure wilt grant me".  
 At another time he said,  
 "Three in one, oh! how can *that* be?"  
 Things which these same Christian  
 people  
 In their law hold quite established.  
 Thus it is my life is troubled,  
 Lost in doubts, emeshed, and tangled.  
 If to freedom I restore him,  
 I have little doubt that, darkened  
 By the Christian treachery, he  
 Will declare himself instanter  
 Openly a Christian, which  
 Would to me be such a scandal,  
 That my blood henceforth were tainted,  
 And my noble name were branded.  
 If I leave him here in prison,  
 So excessive is his sadness,  
 So extreme his melancholy,  
 That I fear 't will end in madness.  
 In a word, I hold, my nephew,  
 Hold it as a certain axiom,  
 That these dark magician Christians  
 Keep him bound by their enchant-  
 ments;  
 Who through hatred of my house,  
 And my office to disparage,  
 Now revenge themselves on me

Through my only son Chrysanthus.  
 Tell me, then, what shall I do;  
 But before you give the answer  
 Which your subtle wit may dictate,  
 I would with your own eyes have thee  
 See him first, you 'll then know better  
 What my urgent need demandeth.  
 Come, he 's not far off, his quarter  
 Is adjoining this apartment;  
 When you see him, I am certain  
 You will think it a disaster  
 Far less evil he should die,  
 Than that in this cruel manner  
 He should outrage his own blood,  
 And my bright escutcheon blacken.  
 [*He opens a door, and Chrysanthus is  
 seen seated in a chair, with his hands  
 and feet in irons.*]

CLAUDIUS.

Thus to see my friend, o'erwhelms me  
 With a grief I cannot master.

POLEMUS.

Stay, do not approach him nearer;  
 For I would not he remarked thee,  
 I would save him the disgrace  
 Of being seen by thee thus shackled.

CLAUDIUS.

What his misery may dictate  
 We can hear, nor yet attract him.

CHRYSANTHUS.

Was ever human fate so strange as  
 mine?

Were unmatched wishes ever mated  
 so?

Is it not enough to feel one form of  
 woe,

Without being forced 'neath opposite  
 forms to pine?

A triune God's mysterious power di-  
 vine,

From heaven I ask for life, that I  
 may know,

From heaven I ask for death, life's  
 grisly foe,

A fair one's favour in my heart to  
 shrine:

But how can death and life so well  
 agree,



That I can ask of heaven to end their strife,  
 And grant them both in pitying love to me?  
 Yet I will ask, though both with risks are rife,  
 Neither shall hinder me, for heaven must be  
 The arbiter of death as well as life.

POLEMUS.  
 See now if I spoke the truth.

CLAUDIUS.  
 I am utterly distracted.

(*The door closes.*)

POLEMUS.  
 Lest perhaps he should perceive us,  
 Let us move a little further.  
 Now advise me how to act,  
 Since you see the grief that racks me.

CLAUDIUS.  
 Though it savours of presumption  
 To white hairs like yours, to hazard  
 Words of council, yet at times  
 Even a young man may impart them:  
 Well-proportioned punishment  
 Grave defects oft counteracteth.  
 But when carried to extremes,  
 It but irritates and hardens.  
 Any instrument of music  
 Of this truth is an example.  
 Lightly touched, it breathes but sweetness,  
 Discord, when 't is roughly handled.  
 'T is not well to send an arrow  
 To such heights, that in discharging  
 The strong tension breaks the bow-string,  
 Or the bow itself is fractured.  
 These two simple illustrations  
 Are sufficiently adapted  
 To my purpose, of advising  
 Means of cure both mild and ample.  
 You must take a middle course,  
 All extremes must be abandoned.  
 Gentle but judicious treatment  
 Is the method for Chrysanthus.  
 For severer methods end in  
 Disappointment and disaster.

Take him, then, from out his prison,  
 Leave him free, unchecked, untrammelled,  
 For the danger is an infant  
 Without strength to hurt or harm him.  
 Be it that those wretched Christians  
 Have bewitched him, disenchant him,  
 Since you have the power; for Nature  
 With such careful forethought acteth,  
 That an antidotal herb  
 She for every poison planteth.  
 And if, finally, your wish  
 Is that he this fatal sadness  
 Should forget, and wholly change it  
 To a happier state and gladder,  
 Get him married: for remember  
 Nothing is so well adapted  
 To restrain discursive fancies  
 As the care and the attachment  
 Centered in a wife and children;  
 Taking care that in this matter  
 Mere convenience should not weigh  
 More than his own taste and fancy:  
 Let him choose his wife himself.  
 Pleased in that, to rove or ramble  
 Then will be beyond his power,  
 Even were he so attracted,  
 For a happy married lover  
 Thinks of naught except his rapture.

POLEMUS.  
 I with nothing such good counsel  
 Can repay, except the frankness  
 Of accepting it, which is  
 The reward yourself would ask for.  
 And since I a mean must choose  
 Between two extremes of action,  
 From his cell, to-day, my son  
 Shall go forth, but in a manner  
 That will leave his seeming freedom  
 Circumscribed and safely guarded.  
 Let that hall which looketh over  
 Great Apollo's beauteous garden  
 Be made gay by flowing curtains,  
 Be festooned by flowery garlands;  
 Costly robes for him get ready;  
 Then invite the loveliest damsels  
 Rome can boast of, to come hither  
 To the feasts and to the dances.

Bring musicians, and in fine  
Let it be proclaimed that any  
Woman of illustrious blood  
Who from his delusive passions  
Can divert him, by her charms  
Curing him of all his sadness,  
Shall become his wife, how humble  
Her estate, her wealth how scanty.  
And if this be not sufficient,  
I will give a golden talent  
Yearly to the leech who cures him  
By some happy stroke of practice.

[Exit.

CLAUDIUS.

Oh! a father's pitying love,  
What will it not do, what marvel  
Not attempt for a son's welfare,  
For his life?

Enter ESCARPIN.

ESCARPIN.

My lord *por Baco!*

(That 's the god I like to swear by,  
Jolly god of all good rascals)  
May I ask you what 's the secret?

CLAUDIUS.

You gain little when you ask me  
For a secret all may know.  
After his mysterious absence  
Your young lord 's returned home ill.

ESCARPIN.

In what way?

CLAUDIUS.

That none can fathom,  
Since he does not tell his ailment  
Save by signs and by his manner.

ESCARPIN.

Then he 's wrong, sir, not to tell it  
Clearly: with extreme exactness  
Should our griefs, our pains be men-  
tioned.

A back tooth a man once maddened,  
And a barber came to draw it.  
As he sat with jaws expanded,  
"Which tooth is it, sir, that pains  
you?"

Asked of him the honest barber,  
And the patient in affected  
Language grandly thus made answer,

"The penultimate"; the dentist  
Not being used to such pedantic  
Talk as this, with ready forceps  
Soon the last of all extracted.  
The poor patient to be certain,  
With his tongue the spot examined,  
And exclaimed, his mouth all bleed-  
ing,  
"Why, that 's not the right tooth, mas-  
ter".

"Is it not the ultimate molar?"  
Said the barber quite as grandly.  
"Yes" (he answered), "but I said  
The penultimate, and I 'd have you  
Know, your worship, that it means  
Simply that that 's next the farthest".  
Thus instructed, he returned  
To the attack once more, remarking  
"In effect then the bad tooth  
Is the one that 's next the last one?"  
"Yes", he said, "then here it is",  
Spoke the barber with great smartness,  
Plucking out the tooth that then  
Was the last but one; it happened  
From not speaking plain, he lost  
Two good teeth, and kept his bad one.

CLAUDIUS.

Come and something newer learn  
In the stratagem his father  
Has arranged to cure the illness  
Of Chrysanthus, whom he fancies . . .

ESCARPIN.

What?

CLAUDIUS.

Is spell-bound by the Christians  
Through the power of their enchant-  
ments:—

(Since to-day I cannot see thee, [*aside*.  
Cynthia fair, forgive my absence).

[Exit.

ESCARPIN.

While these matters thus proceed,  
I shall try, let what will happen,  
Thee to see, divine Daria:—  
At my love, oh! be not angered,  
Since the penalty of beauty  
Is to be beloved: then pardon.

[Exit.

SCENE II.—*The Wood.*

*Enter DARIA from the chase with bow and arrows.*

DARIA.

O stag that swiftly flying  
Before my feathered shafts the winds  
outvieing,  
Impelled by wings, not feet,  
If in this green retreat  
Here panting thou wouldst die,  
And stain with blood the fountain mur-  
muring by,

Await another wound, another friend,  
That so with quicker speed thy life  
may end ;

For to a wretch that stroke a friend  
must be

That eases death and sooner sets life  
free.

[*She stumbles and falls near the mouth  
of a cave.*]

But, bless me, heaven! I feel

My brain grow hot, my curdling blood  
congeal :

A form of fire and snow

I seem at once to turn: this sudden  
blow,

This stumbling, how I know not, by this  
stone,

This horrid mouth in which my grave  
is shown,

This cave of many shapes,

Through which the melancholy moun-  
tain gapes,

This mountain's self, a vast

Abysmal shadow cast

Suddenly on my heart, as if 't were  
meant

To be my rustic pyre, my strange new  
monument,

All fill my heart with wonder and with  
fear,

What buried mysteries are hidden here  
That terrify me so,

And make me tremble 'neath impend-  
ing woe.

[*A solemn strain of music is heard from  
within.*]

Nay more, illusion now doth bear to  
me

The sweetest sounds of dulcet har-  
mony,

Music and voice combine:—

O solitude! what phantasms are  
thine!

But let me listen to the voice that  
blent

Sounds with the music of the instru-  
ment.

*Music from within the cave.*

SONG.

Oh! be the day for ever blest,  
And blest be pitying heaven's decree,  
That makes the darksome cave to be  
Daria's tomb, her place of rest!

DARIA.

Blest! can such evil auguries bless?  
And happy can that strange fate be  
That gives this darksome cave to me  
As monument of my sad life?

MUSIC.

Yes.

DARIA.

Oh! who before in actual woe  
The happier signs of bliss could read?  
Will not a fate so rigorous lead  
To misery, not to rapture?—

MUSIC.

No.

DARIA.

O fantasy! unwelcome guest!  
How can this cave bring good to me?

MUSIC.

Itself will tell, when it shall be  
Daria's tomb, her place of rest.

DARIA.

But then, who gave the stern decree,  
That this dark cave my bones should  
hide?

MUSIC.

Daria, it was he who died,  
Who gave his life for love of thee.

DARIA.

"Who gave his life for love of me!"  
Ah! me, and can it be in sooth  
That gentle noble Roman youth



I answered with such cruelty  
In this same wood the other day,  
Saying that I his love would be  
If he would only die for me!  
Can he have cast himself away  
Down this dark cave, and there lies  
dead,  
Buried within the dread abyss,  
Waiting my love, his promised bliss?—  
My soul, not now mine own, has fled!

CYNTHIA (*within*).

Forward! forward! through the gloom  
Every cave and cavern enter,  
Search the dark wood to its centre,  
Lest it prove Daria's tomb.

DARIA.

Ah! me, the sense confounding,  
Both here and there are opposite voices  
sounding.  
Here is my name in measured cadence  
greeted,  
And there in hollow echoes oft repeated.  
Would that the latter cries that reach  
my ear  
Came from my mates in this wild forest  
sphere,  
In the dread solitude that doth sur-  
round me  
Their presence would be welcome.  
[*Enter Cynthia with bow and ar-  
rows.*]

CYNTHIA.

Till I found me,  
Beauteous Daria, by thy side once  
more,  
Each mountain nook my search had  
well gone o'er.

DARIA (*aside*).

Let me dissemble  
The terror and surprise that make me  
tremble,  
If I have power to feign  
Amid the wild confusion of my brain:—  
Following the chase to-day,  
Wishing Diana's part in full to play,  
So fair the horizon smiled,  
I left the wood and entered on the wild,  
Led by a wounded deer still on and on.

And further in pursuit I would have  
gone,  
Nor had my swift career  
Even ended here,  
But for this mouth that opening in the  
rock,  
With horrid gape my vain attempt  
doth mock,  
And stops my further way.

CYNTHIA.

Until I found thee I was all dismay,  
Lest thou some savage beast, some  
monstrous foe,  
Hadst met.

DARIA (*aside*).

Ah! would to Jove 't were so!  
And that my death in his wild hands  
had paid  
For future chastisement by fate de-  
layed!  
But ah! the wish is vain,  
Foreboding horror fills my heart and  
brain,  
This mystic music borne upon the air  
Must surely augur ill.

(*Enter NISIDA.*)

NISIDA.

Daria fair,  
And Cynthia wise, I come to seek ye  
two.

CYNTHIA.

Has any thing occurred or strange or  
new?

NISIDA.

I scarce can tell it. As I came along,  
I heard a man, in a clear voice and  
strong,  
Proclaiming as he went  
Through all the mountain a most  
strange event:  
Rome hath decreed  
Priceless rewards to her whose charms  
may lead  
Through lawful love and in an open  
way  
By public wedlock in the light of day,  
The son of proud Polemius from the  
state

Of gloom in which his mind is sunk of late.  
 CYNTHIA.  
 And what can be the cause that he is so?  
 NISIDA.  
 Ah! that I do not know,  
 But yonder, leaving the Salarian Way, A Roman soldier hitherward doth stray:  
 He may enlighten us and tell us all.  
 CYNTHIA.  
 Yes, let us know the truth, the stranger call.  
 DARIA (*aside*).  
 Ah! how distinct the pain  
 That presses on my heart, and dulls my wilder'd brain!  
 (*Enter Escarpin.*)  
 NISIDA.  
 Thou, O thou, whose wandering footsteps  
 These secluded groves have entered . . .<sup>9</sup>  
 ESCARPIN.  
 Thou four hundred times repeated —  
 Thou and all the thous, your servant.  
 NISIDA.  
 Tell us of the proclamation  
 Publicly to-day presented  
 To the gaze of Rome.  
 ESCARPIN.  
 I 'll do so;  
 For there 's nothing I love better  
 Than a story (*aside*, if to tell it  
 In divine Daria's presence  
 Does not put me out, for no one,  
 When the loved one listens, ever  
 Speaks his best): Polemius,  
 Rome's great senator, whose bended  
 Shoulders, like an Atlas, bear  
 All the burden of the empire,  
 By Numerian's self entrusted,  
 He, this chief of Rome's great senate,  
 Has a son, by name Chrysanthus,  
 Who, as rumour goes, at present

Is afflicted by a sadness  
 So extreme and so excessive,  
 That 't is thought to be occasioned  
 By the magic those detested  
 Christians (who abhor his house,  
 And his father, who hath pressed  
 them  
 Heavily as judge and ruler)  
 Have against his life effected,  
 All through hatred of our gods.  
 And so great is the dejection  
 That he feels, there 's nothing yet  
 Found to rouse him or divert him.  
 Thus it is Numerianus,  
 Who is ever well-affected  
 To his father, hath proclaimed  
 All through Rome, that whosoever  
 Is so happy by her beauty,  
 Or so fortunately clever  
 By her wit, or by her graces  
 Is so powerful, as to temper  
 His affliction, since love conquers  
 All things by his magic presence,  
 He will give her (if a noble)  
 As his wife, and will present her  
 With a portion far surpassing  
 All Polemius' self possesses,  
 Not to speak of what is promised  
 Him whose skill may else effect it.  
 Thus it is that Rome to-day  
 Laurel wreaths and crowns presenteth  
 To its most renowned physicians,  
 To its sages and its elders,  
 And to wit and grace and beauty  
 Joyous feasts and courtly revels;  
 So that there is not a lady  
 In all Rome, but thinks it certain  
 That the prize is hers already,  
 Since by all 't will be contested,  
 Some through vanity, and some  
 Through a view more interested:  
 Even the ugly ones, I warrant,  
 Will be there well represented.  
 So with this, adieu. (*Aside*, Oh! fairest  
 Nymph Daria, since I ventured

<sup>9</sup> The asonante in *e-e*, recommences here, and continues until the entry of Chrysanthus.

Here to see thee, having seen thee  
Now, alas! I must absent me!) [*Exit.*

CYNTHIA.

What strange news!

NISIDA.

There 's not a beauty  
But for victory will endeavour  
When among Rome's fairest daughters  
Such a prize shall be contested.

CYNTHIA.

Thus by showing us the value  
Thou upon the victory settest,  
We may understand that thou  
Meanest in the lists to enter.

NISIDA.

Yes, so far as heaven through music  
Its most magic cures effecteth,  
Since no witchcraft is so potent  
But sweet music may dispel it.  
It doth tame the raging wild beast,  
Lulls to sleep the poisonous serpent,  
And makes evil genii, who  
Are revolted spirits—rebels—  
Fly in fear, and in this art  
I have always been most perfect:  
Wrongly would I act to-day,  
In not striving for the splendid  
Prize which will be mine, when I  
See myself the loved and wedded  
Wife of the great senator's son,  
And the mistress of such treasures.

CYNTHIA.

Although music is an art  
Which so many arts excelleth,  
Still in truth 't is but a sound  
Which the wanton air disperses.  
It the sweet child of the air  
In the air itself must perish.  
I, who in my studious reading  
Have such learned lore collected,  
Who in poetry, that art  
Which both teacheth and diverteth,  
May precedence claim o'er many  
Geniuses so prized at present,  
Can a surer victory hope for  
In the great fight that impendeth,  
Since the music of the soul  
Is what keeps the mind suspended.

In one item, Nisida,  
We two differ: thy incentive  
Thy chief motive, is but interest:  
Mine is vanity, a determined  
Will no other woman shall  
Triumph o'er me in this effort,  
Since I wish that Rome should see  
That the glory, the perfection  
Of a woman is her mind,  
All her other charms excelling.

DARIA.

Interest and vanity  
Are the two things, as you tell me,  
That, O Cynthia! can oblige thee,  
That, O Nisida, can compel thee  
To attempt this undertaking  
By so many risks attended.  
But I think you both are wrong,  
Since in this case, having heard that  
The affliction this man suffers  
Christian sorcery hath effected  
Through abhorrence of our gods,  
By that atheist sect detested,  
Neither of these feelings should  
Be your motive to attempt it.  
I then, who, for this time only  
Will believe these waves that tell me—  
These bright fountains—that the  
beauty  
Which so oft they have reflected  
Is unequalled, mean to lay it  
As an offering in the temple  
Of the gods, to show what little  
Strength in Christian sorcery dwelleth.

NISIDA.

Then 't is openly admitted  
That we three the list will enter  
For the prize.

CYNTHIA.

And from this moment  
That the rivalry commences.

NISIDA.

Voice of song, thy sweet enchantment  
On this great occasion lend me,  
That through thy soft influence  
Rank and riches I may merit. [*Exit.*

CYNTHIA.

Genius, offspring of the soul,



Prove this time thou 'rt so descended,  
That thy proud ambitious hopes  
May the laurel crown be tendered.

[*Exit.*]

DARIA.

Beauty, daughter of the gods,  
Now thy glorious birth remember:  
Make me victress in the fight,  
That the gods may live for ever. [*Exit.*]

SCENE III.—*A hall in the house of Polemius, opening at the end upon a garden.*

(*Enter Polemius and Claudius.*)

POLEMIUS.

Is then everything prepared?—

CLAUDIUS.

Everything has been got ready  
As you ordered. This apartment  
Opening on the garden terrace  
Has been draped and covered over  
With the costliest silks and velvets,  
Leaving certain spaces bare  
For the painter's magic pencil,  
Where, so cunning is his art,  
That it nature's self resembles.  
Flowers more fair than in the garden,  
Pinks and roses are presented:  
But what wonder when the fountains  
Still run after to reflect them?—  
All things else have been provided,  
Music, dances, gala dresses;  
And for all that, Rome yet knows not  
What in truth is here projected;  
'T is a fair Academy,  
In whose floral halls assemble  
Beauty, wit, and grace, a sight  
That we see but very seldom.  
All the ladies too of Rome  
Have prepared for the contention  
With due circumspection, since  
As his wife will be selected  
She who best doth please him; thus  
There are none but will present them  
In these gardens, some to see him,  
Others to show off themselves here.

POLEMIUS.

Oh, my Claudius, would to Jove

That all this could dispossess me  
Of my dark foreboding fancies,  
Of the terrors that oppress me!—

(*Enter Aurelius.*)

AURELIUS.

Sir, a very learned physician  
Comes to proffer his best service  
To Chrysanthus, led by rumour  
Of his illness.

POLEMIUS.

Bid him enter.

[*Aurelius retires, and returns immediately with Carpophorus, disguised as a physician.*]

CARPOPHORUS (*aside*).

Heaven, that I may do the work  
That this day I have attempted,  
Grant me strength a little while;  
For I know my death impendeth!—  
Mighty lord, thy victor hand, [*aloud.*]  
Let me kiss and kneeling press it.

POLEMIUS.

Venerable elder, rise  
From the ground; thy very presence  
Gives me joy, a certain instinct  
Even at sight of thee doth tell me  
Thou alone canst save my son.

CARPOPHORUS.

Heaven but grant the cure be perfect!

POLEMIUS.

Whence, sir, art thou?

CARPOPHORUS.

Sir, from Athens.

POLEMIUS.

'T is a city that excelleth  
All the world in knowledge.

CARPOPHORUS.

There

All are teachers, all are learners.  
The sole wish to be of use  
Has on this occasion led me  
From my home. Inform me then  
How Chrysanthus is affected.

POLEMIUS.

With an overwhelming sadness;  
Or to speak it more correctly  
(Since when we consult a doctor  
Even suspicions should be mentioned),

He, my son, has been bewitched;—  
Thus it is these Christian perverts  
Take revenge through him on me:  
In particular an elder  
Called Carpophorus, a wizard . . .  
May the day soon come for vengeance!

CARPOPHORUS.

May heaven grant it . . . (*aside*, For  
that day

I the martyr's crown may merit).  
Where at present is Chrysanthus?

POLEMUS.

He is just about to enter:—  
You can see him; all his ailment  
In the soul you 'll find is centered.

CARPOPHORUS.

In the soul then I will cure him,  
If my skill heaven only blesses.

[*Music is heard from within.*

CLAUDIUS.

That he 's leaving his apartment  
This harmonious strain suggesteth,  
Since to counteract his gloom  
He by music is attended.

(*Enter Chrysanthus richly dressed, preceded by musicians playing and singing, and followed by attendants.*)

CHRYSANTHUS.

Cease; my pain, perchance my folly,  
Cannot be by song diverted;  
Music is a power exerted  
For the cure of melancholy,  
Which in truth it but augmenteth.

A MUSICIAN.

This your father bade us do.

CHRYSANTHUS.

'T is because he never knew  
Pain like that which me tormenteth.  
For if he that pang incessant  
Felt, he would not wish to cure it,  
He would love it and endure it.

POLEMUS.

Think, my son, that I am present,  
And that I am not ambitious  
To assume your evil mood,  
But to find that it is good.

CHRYSANTHUS.

No, sir, you mistake my wishes.

I would not through you relieve me  
Of my care; my former state  
Seemed, though, more to mitigate  
What I suffer: why not leave me  
There to die?

POLEMUS.

That yet I may,  
Pitying your sad condition,  
Work your cure:—A great physician  
Comes to visit you to-day.

CHRYSANTHUS (*aside*).

Who do I behold? ah, me!

CARPOPHORUS.

I will speak to him with your leave.

CHRYSANTHUS (*aside*).

No, my eyes do not deceive,  
'T is Carpophorus that I see!  
I my pleasure must conceal.

CARPOPHORUS.

Sir, of what do you complain?

CHRYSANTHUS.

Since you come to cure my pain,  
I will tell you how I feel.  
A great sadness hath been thrown  
O'er my mind and o'er my feelings,  
A dark blank whose dim revealings  
Make their sombre tints mine own.

CARPOPHORUS.

Can you any cause assign me  
Whence this sadness is proceeding?

CHRYSANTHUS.

From my earliest years to reading  
Did my studious tastes incline me.  
Something thus acquired doth wake  
Doubts, and fears, and hopes, ah me!  
That the things I read may be.

CARPOPHORUS.

Then from me this lesson take.  
Every mystery how obscure,  
Is explained by faith alone;  
All is clear when that is known:  
'T is through faith I 'll work your cure.  
Since in that your healing lies,  
Take it then from me.

CHRYSANTHUS.

From you

I infer all good: that true  
Faith I hope which you advise.

CARPOPHORUS (*to Polemius*).

Give me leave, sir, to address  
Some few words to him alone,  
Less reserve will then be shown.

(*The two retire to one side.*)

Have you recognized me?

CHRYSANTHUS.

Yes,

Every sign shows you are he  
Who in my most perilous strait  
Fled and left me to my fate.

CARPOPHORUS.

God did that; and would you see  
That it was His own work, say,  
If I did not then absent me  
Through His means, could I present  
me

As your teacher here to-day?

CHRYSANTHUS.

No.

CARPOPHORUS.

How just His providence!

Since I was preserved, that I  
Here might seek you, and more nigh  
Give you full intelligence  
Leisurely of every doubt  
Which disturbs you when you read.

CHRYSANTHUS.

Mysteries they are indeed,  
Difficult to be made out.

CARPOPHORUS.

To the believer all is plain.

CHRYSANTHUS.

I *would* believe, what *must* I do?—

CARPOPHORUS.

Your intellectual pride subdue.

CHRYSANTHUS.

I will subdue it, since 't is vain.

CARPOPHORUS.

Then the first thing to be done  
Is to be baptized.

CHRYSANTHUS.

I bow,

Father, and implore it now.

CARPOPHORUS.

Let us for the present shun  
Further notice; lest suspicion  
Should betray what we would smother;

Every day we 'll see each other,  
When I 'll execute my mission:  
I, to cure sin's primal scath,  
Will at fitting time baptize you,  
Taking care to catechise you  
In the principles of the faith;  
Only now one admonition  
Must I give; be armed, be ready  
For the fight most fierce and steady  
Ever fought for man's perdition;  
Oh! take heed, amid the advances  
Of the fair who wish to win you,  
'Mid the fires that burn within you,  
'Mid lascivious looks and glances,  
'Mid such various foes enlisted,  
That you are not conquered by them.

CHRYSANTHUS.

Women! oh! who dare defy them  
By such dread allies assisted?

CARPOPHORUS.

He whom God assists.

CHRYSANTHUS.

Be swayed

By my tears, and ask him.

CARPOPHORUS.

You

Must too ask him: for he who  
Aids himself, him God doth aid.

POLEMIUS.

What, sir, think you of his case?

CARPOPHORUS.

I have ordered him a bath,  
Strong restoring powers it hath,  
Which his illness must displace:—

POLEMIUS.

Sir, relying on you then,  
I will give you ample wealth,  
If you can restore his health.

CARPOPHORUS.

Still I cannot tell you when,  
But I shall return and see him  
Frequently; in fact 'till he  
Is from all his ailment free,  
From my hand I will not free him.

POLEMIUS.

For your kindness I am grateful.

CHRYSANTHUS.

He alone has power to cure me.



Since he knows what *will* allure me,  
When all other modes are hateful.

[*Exit Carpophorus.*  
(*Enter Escarpin.*)

ESCARPIN.  
All this garden of delight  
Must be beauty's birth-place sure,  
Here the fresh rose doubly pure,  
Here the jasmin doubly white,  
Learn to-day a newer grace,  
Lovelier red, more dazzling snow.

POLEMIOUS.  
Why?

ESCARPIN.  
Because the world doth show  
Naught so fair as this sweet place.  
Falsely boasts th' Elysian bower  
Peerless beauty, here to-day  
More, far more, these groves display:—  
Not a fountain, tree, or flower . . .

POLEMIOUS.  
Well?

ESCARPIN.  
But by a nymph more fair  
Is surpassed.

POLEMIOUS.  
Come, Claudius, come,  
He will be but dull and dumb,  
Shy the proffered bliss to share,  
Through the fear and the respect  
Which, as son, he owes to me.

CLAUDIUS.  
He who gave the advice should see  
Also after the effect.  
Let us all from this withdraw.

POLEMIOUS.  
Great results I hope to gather:  
ESCARPIN (*aside*).  
Well, you're the first pander-father  
Ever in my life I saw.

CHRYSANTHUS.  
What, Escarpin, you, as well,  
Going to leave me? Mum for once.

ESCARPIN.  
Silence suits me for the nonce.

CHRYSANTHUS.  
Why?

ESCARPIN.

A tale in point I'll tell:  
Once a snuffler, by a pirate  
Moor was captured, who in some  
Way affected to be dumb,  
That his ransom at no high rate  
Might be purchased: when his owner  
This defect perceived, the shuffle  
Made him sell this Mr. Snuffle  
Very cheaply: to the donor  
Of his freedom, through his nose,  
Half in snuffle, half in squeak,  
Then he said, "Oh! Moor, I speak,  
I'm not dumb as you suppose".  
"Fool, to let your folly lead you  
So astray", replied the Moor.  
"Had I heard you *speak*, be sure  
I *for nothing* would have freed you".  
Thus it is I moderate me  
In the use of tongue and cheek,  
Lest when you have heard me speak,  
Still more cheaply you may rate me.

CHRYSANTHUS.  
You must know the estimation  
I have held you in so long.

ESCARPIN.  
Well, my memory is not strong.  
It requires *consideration*  
To admit that pleasant fact.

CHRYSANTHUS.  
What of me do people say?—

ESCARPIN.  
Shall I speak it?

CHRYSANTHUS.  
Speak.

ESCARPIN.  
Why, they  
Say, my lord, that you are cracked.

CHRYSANTHUS.  
For what reason? Why this blame?

ESCARPIN.  
Reason, sir, need not be had,  
For the wisest man is mad  
If he only gets the name.

CHRYSANTHUS.  
Well, it was not wrongly given,  
If they only knew that I  
Have consented even to die

So to reach the wished-for heaven  
Of a sovereign beauty's favour.

ESCARPIN.

For a lady's favour you  
Have agreed to die?

CHRYSANTHUS.

'T is true.

ESCARPIN.

Does not this a certain savour  
Of insanity give your sadness?

CHRYSANTHUS.

Were I certain as of breath  
I could claim it after death,  
There was method in my madness.

ESCARPIN.

A brave soldier of the line,  
On his death-bed lying ill,  
Spoke thus, "Item, 't is my will,  
Gallant friends and comrades mine,  
That you 'll bear me to my grave,  
And although I 've little wealth,  
Thirty reals to drink my health  
Shall you for your kindness have".  
Thus the hope as vain must be  
After death one's love to wed,  
As to drink one's health when dead.  
[*Nisida advances from the garden.*]

CHRYSANTHUS.

But what maid is this I see  
Hither through the garden wending?

ESCARPIN.

If you take a stroll with me  
Plenty of her sort you 'll see.

NISIDA.

One who would effect the ending  
Of thy sadness.

CHRYSANTHUS (*aside*).

Now comes near thee,  
O my heart, thy threatened trial!  
Lady, pardon the denial,  
But I would nor see nor hear thee.

NISIDA.

Not so ungallantly surely  
Wilt thou act, as not to see  
One who comes to speak with thee?

CHRYSANTHUS.

To see one who thinks so poorly  
Of herself, and with such lightness

Owens she comes to speak with me,  
Rather would appear to be  
Want of sense than of politeness.

NISIDA.

All discourse is not so slight  
That thou need'st decline it so.

CHRYSANTHUS.

No, I will not see thee, no.  
Thus I shut thee from my sight.

NISIDA.

Vainly art thou cold and wise,  
Other senses thou shouldst fear,  
Since I enter by the ear,  
Though thou shut me from the eyes.

*Sings.*

"*The blessed rapture of forgetting  
Never doth my heart deserve,  
What my memory would preserve  
Is the memory I 'm regretting*".

CHRYSANTHUS.

That melting voice, that melody  
Spell-bound holds th' entranced soul.  
Ah! from such divine control  
Who his fettered soul could free?—  
Human Siren, leave me, go!  
Too well I feel its fatal power.  
I faint before it like a flower  
By warm-winds wooed in noontide's  
glow.

The close-pressed lips the mouth can  
lock,

And so repress the vain reply,  
The lid can veil th' unwilling eye  
From all that may offend and shock,—  
Nature doth seem a niggard here,  
Unequally her gifts disposing,  
For no instinctive means of closing  
She gives the unprotected ear.

(*Enter Cynthia.*)

CYNTHIA.

Since then the ear cannot be closed,  
And thou resistance need'st not try,  
Listen to the gloss that I  
On this sweet conceit composed:  
"The blessed rapture of forgetting  
Never doth my heart deserve;  
What my memory would preserve  
Is the memory I 'm regretting".

When Nature from the void obscure  
Her varied world to life awakes,  
All things find use and so endure:—  
Thus she a poison never makes  
Without its corresponding cure:  
Each thing of Nature's careful setting,

Each plant that grows in field or grove  
Hath got its opposite flower or weed;  
The cure is with the pain decreed;  
Thus too is found for feverish love  
*The blessed rapture of forgetting.*  
The starry wonders of the night,  
The arbiters of fate on high,  
Nothing can dim: To see their light  
Is easy, but to draw more nigh  
The orbs themselves, exceeds our  
might.

Thus 't is to know, and only know,  
The troubled heart, the trembling  
nerve,

To sweet oblivion's blank may owe  
Their rest, but, ah! *that* cure of woe  
*Never doth my heart deserve.*

Then what imports it that there be,  
For all the ills of heart or brain,  
A sweet oblivious remedy,  
If it, when 't is applied to me,  
Fails to cure me of my pain?  
Forgetfulness in me doth serve  
No useful purpose: But why fret  
My heart at this? Do I deserve,  
Strange contradiction! to forget  
*What my memory would preserve?*  
And thus my pain in straits like  
these,

Must needs despise the only sure  
Remedial means of partial ease—  
That is—to perish of the cure  
Rather than die of the disease.  
Then not in wailing or in fretting,  
My love, accept thy fate, but let  
This victory o'er myself, to thee  
Bring consolation, pride, and glee,  
Since what I wish not to forget  
*Is the memory I'm regretting.*

CHRYSANTHUS.

'T is not through the voice alone  
Music breathes its soft enchantment.<sup>10</sup>  
All things that in concord blend  
Find in music their one language.  
Thou with thy delicious sweetness [*To*  
*Nisida*]

Hast my heart at once made captive;—  
Thou with thy melodious verses [*To*  
*Cynthia*]

Hast my very soul enraptured.  
Ah! how subtly thou dost reason!  
Ah! how tenderly thou chantest!  
Thou with thy artistic skill,  
Thou with thy clear understanding.  
But what say I? I speak falsely,  
For you both are sphinxes rather,  
Who with flattering words seduce me  
But to ruin me hereafter:—  
Leave me; go: I cannot listen  
To your wiles.

ESCARPIN.

My lord, oh! hearken

To my song once more.

CYNTHIA.

Wait! stay!

NISIDA.

Why thus treat with so much harshness  
Those who mourn thy deep dejection?

ESCARPIN.

Oh! how soon they'd have an answer  
If they asked of me these questions.  
I know how to treat such tattle:  
Leave them, sir, to me.

CHRYSANTHUS.

My senses

'Gainst their lures I must keep guarded:  
They are crocodiles, but feigning  
Human speech, so but to drag me  
To my ruin, my destruction.

NISIDA.

Since my voice will still attract thee,  
'T is of little use to fly me.

CYNTHIA.

Though thou dost thy best to guard  
thee,

<sup>10</sup> The metre changes to the asonante in *a e* for the remainder of this Act.



While I gloss the words she singeth  
To my genius thou must hearken.

CHRYSANTHUS (*aside*)  
God whom I adore! since I  
Help myself, Thy help, oh! grant me!

NISIDA.  
"Ah! the joy" . . .

(*she becomes confused*.  
But what is this?

Icy torpor coldly fastens  
On my hands; the lute drops from me,  
And my very breath departeth.

CYNTHIA.  
Since she cannot sing; then listen  
To this subtle play of fancy:  
"Love, if thou 'rt my god" . . .

(*she becomes confused*.  
But how,

What can have my mind so darkened  
What my memory so confuses,  
What my voice can so embarrass?

NISIDA.  
I am turned to frost and fire,  
I am changed to living marble.

CYNTHIA.  
Frozen over is my breast,  
And my heart is cleft and hardened.

CHRYSANTHUS.  
Thus to lose your wits, ye two,  
What can have so strangely happened?

ESCARPIN.  
Being poets and musicians,  
Quite accounts, sir, for their absence.

NISIDA.  
Heavens! beneath the noontide sun  
To be left in total darkness!

CYNTHIA.  
In an instant, O ye heavens!  
O'er your vault can thick clouds gather?

NISIDA.  
'Neath the contact of my feet  
Earth doth tremble, and I stagger.

CYNTHIA.  
Mountains upon mountains seem  
On my shoulders to be balanced.

ESCARPIN.  
So it always is with those  
Who make verses, or who chant them.

CHRYSANTHUS.  
Of the one God whom I worship  
These are miracles, are marvels.

(*Enter Daria*.)  
DARIA.  
Here, Chrysanthus, I have come . . .

NISIDA.  
Stay, Daria.

CYNTHIA.  
Stay, 't is rashness  
Here to come, for, full of wonders,  
Full of terrors is this garden.

ESCARPIN.  
Do not enter: awful omens  
Threat'ning death await thy advent.

NISIDA.  
By my miseries admonished . . .

CYNTHIA.  
By my strange misfortune startled . . .

NISIDA.  
Flying from myself, I leave  
This green sphere, dismayed, dis-  
tracted.

CYNTHIA.  
Without soul or life I fly,  
Overwhelmed by this enchantment.

NISIDA.  
Oh! how dreadful!

CYNTHIA.  
Oh! how awful!

NISIDA.  
Oh! the horror!

CYNTHIA.  
Oh! the anguish!

[*Exeunt Cynthia and Nisida*.]  
ESCARPIN.

Mad with jealousy and rage  
Have the tuneful twain departed.

DARIA (*aside*).  
Chastisements for due offences  
Do not fright me, do not startle,  
For if they through arrogance  
And ambition sought this garden,  
Me the worship of the gods  
Here has led, and so I 'm guarded  
'Gainst all sorceries whatsoever,  
'Gainst all forms of Christian magic:—  
Art thou then Chrysanthus?

CHRYSANTHUS.

Yes.

DARIA.

Not confused or troubled, rather  
With a certain fear I see thee,  
For which I have grounds most ample.

CHRYSANTHUS.

Why?

DARIA.

Because I thought thou wert  
One who in a darksome cavern  
Died to show thy love for me.

CHRYSANTHUS.

I have yet been not so happy  
As to have a chance, Daria,  
Of thus proving my attachment.

DARIA.

Be that so, I've come to seek thee,  
Confident, completely sanguine,  
That I have the power to conquer,  
I alone, thy pains, thy anguish;  
Though against me thou shouldst use  
The Christian armoury — enchant-  
ments.

CHRYSANTHUS.

That thou hast alone the power  
To subdue the pains that wrack me,  
I admit it; but in what  
Thou hast said of Christian magic  
I, Daria, must deny it.

DARIA.

How? from what cause else could  
happen

The effects I just have witnessed?

CHRYSANTHUS.

Miracles they are and marvels.

DARIA.

Why do they affect not me?

CHRYSANTHUS.

'T is because I do not ask them  
Against thee; because from aiding  
Not myself, no aid is granted.

DARIA.

Then I come here to undo them.

CHRYSANTHUS.

Most severe will be the battle,  
Upon one side their due praises  
On the other side thy anger.

DARIA.

I would have thee understand  
That our gods are sorely damaged  
By thy sentiments.

CHRYSANTHUS.

And I

That those gods are false—mere phan-  
toms.

DARIA.

Then get ready for the conflict,  
For I will not lower my standard  
Save with victory or death.

CHRYSANTHUS.

Though thou makest me thy captive,  
Thou my firmness wilt not conquer.

DARIA.

Then to arms! I say, to arms, then!

CHRYSANTHUS.

Though the outposts of the soul,  
The weak heart, by thee be captured;  
Not so will the Understanding,  
The strong warden who doth guard  
it.

DARIA.

Thou 'lt believe me, if thou 'lt love me.

CHRYSANTHUS.

Thou not me, 'till love attracts thee.

DARIA.

That perhaps may be; for I  
Would not give thee this advantage.

CHRYSANTHUS.

Oh! that love indeed may lead thee  
To a state so sweet and happy!

DARIA.

Oh! what power will disabuse thee  
Of thy ignorance, Chrysanthus?

CHRYSANTHUS.

Oh! what pitying power, Daria,  
Will the Christian faith impart thee?

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ACT THE THIRD.

SCENE I.—*The Garden of Polemius.*

*Enter POLEMUS, AURELIUS, CLAU-  
DIUS, and ESCARPIN.*

POLEMUS.

All my house is in confusion,

Full of terrors, full of horrors;<sup>11</sup>  
 Ah! how true it is a son  
 Is the source of many sorrows!—

CLAUDIUS.

But, my lord, reflect . . .

ESCARPIN.

Consider . . .

Think . . .

POLEMIOUS.

Why think, when misery follows?—  
 Cease: you add to my affliction,  
 And in no way bring me solace.  
 Since you see that in his madness  
 He is now more firm and constant,  
 Falling sick of new diseases,  
 Ere he 's well of old disorders:  
 Since one young and beauteous maiden,  
 Whom love wished to him to proffer,  
 Free from every spot and blemish,  
 Pure and perfect in her fondness,  
 Is the one whose fatal charms  
 Give to him such grief and torment,  
 That each moment he may perish,  
 That he may expire each moment;  
 How then can you hope that I  
 Now shall list to words of comfort?—

CLAUDIUS.

Why not give this beauteous maiden  
 To your son to be his consort,  
 Since you see his inclination?

POLEMIOUS.

For this reason: when the project  
 I proposed, the two made answer,  
 That before they wed, some problem,  
 Some dispute that lay between them  
 Should be settled: this seemed proper:  
 But when I would know its nature  
 I could not the cause discover.  
 From this closeness I infer  
 That some secret of importance  
 Lies between them, and that this  
 Is the source of all my sorrows.

AURELIUS.

Sir, my loyalty, my duty  
 Will not let me any longer

Silence keep, too clearly seeing  
 How the evil has passed onward.  
 On that day we searched the moun-  
 tain. . . .

POLEMIOUS (*aside*).

Woe is me! could he have known then  
 All this time it was Chrysanthus?

AURELIUS.

I approaching, where with shoulders  
 Turned against me stood one figure,  
 Saw the countenance of another,  
 And methinks he was . . .

POLEMIOUS (*aside*).

Ye gods!

Yes, he saw him! help! support me!

AURELIUS.

The same person who came hither  
 Lately in the garb of a doctor,  
 Who to-day to cure Chrysanthus  
 Such unusual treatment orders.  
 Do you ascertain if he  
 Is Carpophorus; let no portent  
 Fright you, on yourself rely,  
 And you 'll find that all will prosper.

POLEMIOUS.

Thanks, Aurelius, for your warning,  
 Though 't is somewhat tardily offered.  
 Whether you are right or wrong,  
 I to-day will solve the problem.  
 For the sudden palpitation  
 Of my heart that beats and throbbeth  
 'Gainst my breast, doth prove how  
 true

Are the suspicions that it fostered.  
 And if so, then Rome will see  
 Such examples made, such torments,  
 That one bleeding corse will show  
 Wounds enough for myriad corpses.

[*Exeunt Aurelius and Polemious.*]

CLAUDIUS.

Good Escarpin . . .

ESCARPIN.

Sir.

CLAUDIUS.

I know not

<sup>11</sup> The asonante in this scene is generally in *o-e*, *o-o*, *o-a*, which are nearly all alike in sound. In the second scene the asonante is in *a-e*, as in "scatter", etc.



How to address you in my sorrow.  
Do you say that Cynthia was  
One of those not over-modest  
Beauties who to court Chrysanthus  
Hithercame, and who (strange por-  
tent!)

ESCARPIN.

Yes, sir, and what 's worse, Daria  
Was another, thus the torment  
That we both endure is equal,  
If my case be not the stronger,  
Since to love her would be almost  
Less an injury than to scorn her.

CLAUDIUS.

Well, I will not quarrel with you  
On the point (for it were nonsense)  
Whether one should feel more keenly  
Love or hate, disdain or fondness  
Shown to one we love; enough  
'T is to me to know, that prompted  
Or by vanity or by interest,  
She came hither to hold converse  
With him, 't is enough to make me  
Lose the love I once felt for her.

ESCARPIN.

Sir, two men, one bald, one squint-eyed,  
Met one day . . .

CLAUDIUS.

What, on your hobby?  
A new story?

ESCARPIN.

To tell stories,  
Sir, is not my *forte*, 'pon honour:—  
Though who would n't make a hazard  
When the ball is over the pocket?—

CLAUDIUS.

Well, I do not care to hear it.

ESCARPIN.

Ah, you know it then: Another  
Let me try: A friar once . . .  
Stay though, I have quite forgotten  
There are no friars yet in Rome:  
Well, once more: a fool . . .

CLAUDIUS.

A blockhead  
Like yourself, say: cease.

ESCARPIN.

Ah, sir,  
My poor tale do n't cruelly shorten.  
While the sacristan was blowing . . .

CLAUDIUS.

Why, by heaven! I 'll kill you, donkey.

ESCARPIN.

Hear me first, and kill me after.

CLAUDIUS.

Was there ever known such folly  
As to think 'mid cares so grave  
I could listen to such nonsense? (*exit*.  
[*Enter Chrysanthus and Daria, at op-  
posite sides.*]

DARIA (*to herself*).

O ye gods, since my intention  
Was in empty air to scatter  
All these prodigies and wonders  
Worked in favour of Chrysanthus  
By the Christians' sorcery, why,  
Having you for my copartners,  
Do I not achieve a victory  
Which my beauty might make facile?

CHRYSANTHUS.

O ye heavens, since my ambition  
Was to melt Daria's hardness,  
And to bring her to the knowledge  
Of one God who works these marvels,  
Why, so pure is my intention,  
Why, so zealous and so sanguine,  
Does not easy victory follow,  
Due even to my natural talent?

DARIA (*aside*).

He is here, and though already  
Even to see him, to have parley  
With him, lights a living fire  
In my breast, which burns yet glads  
me,

Yet he must confess my gods,  
Ere I own that I am vanquished.

CHRYSANTHUS (*aside*).

She comes hither, and though I  
By her beauty am distracted,  
Still she must become a Christian  
Ere a wife's dear name I grant her.

DARIA (*aside*).

Venus, to my beauty give  
Power to make of him my vassal.

CHRYSANTHUS (*aside*).

Grant, O Lord, unto my tongue  
Words that may dispel her darkness.

DARIA (*aside*).

To come near him makes me tremble.

CHRYSANTHUS (*aside*).

To address her, quite unmans me:—  
Not in vain, O fair Daria, (*aloud*.  
Does the verdure of this garden,  
When it sees thee pass, grow young  
As beneath spring's dewy spangles;  
Not in vain, since though 't is evening,  
Thou a new Aurora dazzleth,  
That the birds in public concert  
Hail thee with a joyous anthem;  
Not in vain the streams and fountains,  
As their crystal current passes,  
Keep melodious time and tune  
With the bent boughs of the alders;  
The light movement of the zephyrs  
As athwart the flowers they 're wafted,  
Bends their heads to see thee coming,  
Then uplifts them to look after.

DARIA.

These fine flatteries, these fine phrases  
Make me doubt of thee, Chrysanthus.  
He who gilds the false so well,  
Must mere truth find unattractive.

CHRYSANTHUS.

Hast thou then such little faith  
In my love?

DARIA.

Thou needst not marvel.

CHRYSANTHUS.

Why?

DARIA.

Because no more of faith  
Doth a love deserve that acteth  
Such deceptions.

CHRYSANTHUS.

What deceptions?

DARIA.

Are not those enough, Chrysanthus,  
That thou usest to convince me  
Of thy love, of thy attachment,  
When my first and well-known wishes

Thou perversely disregardest?

Is it possible a man  
So distinguished for his talents,  
So illustrious in his blood,  
Such a favourite from his manners,  
Would desire to ruin all  
By an error so unhappy,  
And for some delusive dream  
See himself abhorred and branded?

CHRYSANTHUS.

I nor talents, manners, blood,  
Would be worthy of, if madly  
I denied a Great First Cause,  
Who made all things, mind and mat-  
ter,

Time, heaven, earth, air, water, fire,  
Sun, moon, stars, fish, birds, beasts,  
*Man* then.

DARIA.

Did not Jupiter, then, make heaven,  
Where we hear his thunders rattle?

CHRYSANTHUS.

No, for if he could have made  
Heaven, he had no need to grasp it  
For himself at the partition,  
When to Neptune's rule he granted  
The great sea, and hell to Pluto;—  
Then they *were* ere all this happened.<sup>12</sup>

DARIA.

Is not Ceres the earth, then?

CHRYSANTHUS.

No.

Since she lets the plough and harrow  
Tear its bosom, and a goddess  
Would not have her frame so mangled.

DARIA.

Tell me, is not Saturn time?

CHRYSANTHUS.

He is not, though he dispatcheth  
All the children he gives birth to;  
To a god no crimes should happen.

DARIA.

Is not Venus the air?

CHRYSANTHUS.

Much less,

Since they say that she was fashioned

<sup>12</sup> See note referring to the *auto*, "The Sacred Parnassus", Act 1, p. 21.

From the foam, and foam, we know,  
Cannot from the air be gathered.

DARIA.

Is not Neptune the sea?

CHRYSANTHUS.

As little,

For inconstancy were god's mark then.

DARIA.

Is not the sun Apollo?

CHRYSANTHUS.

No.

DARIA.

The moon Diana?

CHRYSANTHUS.

All mere babble.

They are but two shining orbs  
Placed in heaven, and there commanded

To obey fixed laws of motion  
Which thy mind need not embarrass.  
How can these be called the gods—  
Gods adulterers and assassins!  
Gods who pride themselves for thefts,  
And a thousand forms of badness,  
If the ideas God and Sin  
Are opposed as light to darkness?—  
With another argument

I would further sift the matter.  
Let then Jupiter be a god,  
In his *own* sphere lord and master:  
Let Apollo be one also:  
Should Jove wish to hurl in anger  
Down his red bolts on the world,  
And Apollo would not grant them,  
He the so-called god of fire;  
From the independent action  
Of the two does it not follow  
One of them must be the vanquished?  
Then they cannot be called gods,  
Gods whose wills are counteracted.  
One is God whom I adore . . .  
And He is, in fine, that martyr  
Who has died for love of thee!—  
Since then, thou hast said, so adverse  
Was thy proud disdain, one only  
Thou couldst love with love as ardent  
Almost as his own, was he  
Who would . . .

DARIA.

Oh! proceed no farther,

Hold, delay thee, listen, stay,  
Do not drive my brain distracted,  
Nor confound my wildered senses,  
Nor convulse my speech, my language,

Since at hearing such a mystery  
All my strength appears departed.  
I do not desire to argue  
With thee, for, I own it frankly,  
I am but an ignorant woman,  
Little skilled in such deep matters.  
In this law have I been born,  
In it have been bred: the chances  
Are that in it I shall die:  
And since change in me can hardly  
Be expected, for I never  
At thy bidding will disparage  
My own gods, here stay in peace.  
Never do I wish to hearken  
To thy words again, or see thee,  
For even falsehood, when apparelled  
In the garb of truth, exerteth  
Too much power to be disregarded.

[Exit.

CHRYSANTHUS.

Stay, I cannot live without thee,  
Or, if thou wilt go, the magnet  
Of thine eye must make me follow.  
All my happiness is anchored  
There. Return, Daria. . . .

(Enter *Carpophorus*.)

CARPOPHORUS.

Stay.

Follow not her steps till after  
You have heard me speak.

CHRYSANTHUS.

What would you?

CARPOPHORUS.

I would reprimand your lapses,  
Seeing how ungratefully  
You, my son, towards me have acted.

CHRYSANTHUS.

I ungrateful!

CARPOPHORUS.

You ungrateful,

Yes, because you have abandoned,



Have forgotten God's assistance,  
So effectual and so ample.

CHRYSANTHUS.

Do not say I have forgotten  
Or abandoned it, wise master,  
Since my memory to preserve it  
Is as 't were a diamond tablet.

CARPOPHORUS.

Think you that I can believe you,  
If when having in this garment  
Sought you out to train and teach you,  
In the Christian faith and practice,  
Until deep theology  
You most learnedly have mastered;  
If, when having seen your progress,  
Your attention and exactness,  
I in secret gave you baptism,  
Which its mark indelibly stampeth;  
You so great a good forgetting,  
You for such a bliss so thankless,  
With such shameful ease surrender  
To this love-dream, this attachment?  
Did it strike you not, Chrysanthus,  
To that calling how contrasted  
Are delights, delirious tumults,  
Are love's transports and its raptures,  
Which you should resist? Recall too,  
Can you not? the aid heaven granted  
When you helped yourself, and prayed  
for

Its assistance: were you not guarded  
By it when a sweet voice sung,  
When a keen wit glowed and argued,  
When the instrument was silenced,  
When the tongue was forced to stam-  
mer,

Until now, when with free will  
You succumb to the enchantment  
Of one fair and fatal face,  
Which hath done to you such damage  
That 't will work your final ruin,  
If the trial longer lasteth?—

CHRYSANTHUS.

Oh! my father, oh! my teacher,  
Hear me, for although the charges  
Brought against me thus are heavy,  
Still I to myself have ample  
Reasons for my exculpation.

Since you taught me, you, dear mas-  
ter,

That the union of two wills  
In our law is well established.  
Be not then displeased, Carpopho-  
rus . . .

(*Aside.*) Heavens! what have I said?  
My father!

(*Enter Polemius.*)

POLEMIUS (*aside*).

Ah! this name removes all doubt.  
But I must restrain my anger,  
And dissemble for the present,  
If such patience Jove shall grant  
me:—

How are you to-day, Chrysanthus?

(*aloud.*)

CHRYSANTHUS.

Sir, my love and duty cast them  
Humbly at your feet: (*aside*, Thank  
heaven,  
That he heard me not, this calmness  
Cannot be assumed).

POLEMIUS.

I value

More than I can say your manner  
Towards my son, so kind, so zealous  
For his health.

CARPOPHORUS.

Heaven knows, much farther  
Even than this is my ambition,  
Sir, to serve you: but the passions  
Of Chrysanthus are so strong,  
That my skill they overmaster.

POLEMIUS.

How?

CARPOPHORUS.

Because the means of cure  
He perversely counteracteth.

CHRYSANTHUS.

Ah! sir, no, I've left undone  
Nothing that you have commanded.

CARPOPHORUS.

No, not so, his greatest peril  
He has rashly disregarded.

POLEMIUS.

I implicitly can trust you,  
Of whose courage, of whose talents

I have been so well informed,  
That I mean at once to grant them  
The reward they so well merit.

CARPOPHORUS.

Sir, may heaven preserve and guard  
you.

POLEMIOUS.

Come with me; for I desire  
That you should from my apartments  
Choose what best doth please you; I  
Do not doubt you 'll find an ample  
Guerdon for your care.

CARPOPHORUS.

To be  
Honoured in this public manner  
Is my best reward.

POLEMIOUS (*aside*).

The world  
Shall this day a dread example  
Of my justice see, transcending  
All recorded in time's annals.

(*Exeunt Polemius and Carpophorus.*)

CHRYSANTHUS.

Better than I could have hoped for  
Has it happened, since my father  
Shows by his unruffled face  
That his name he has not gathered.  
What more evidence can I wish for  
Than to see the gracious manner  
In which he conducts him whither  
His reward he means to grant him?  
Oh! that love would do as much  
In the fears and doubts that rack me,  
Since I cannot wed Daria,  
And be faithful to Christ's banner.

(*Enter Daria.*)

DARIA (*aside*).

Tyrant question which methought  
Timely flight alone could answer,  
Once again, against my will  
To his presence thou dost drag me.

CHRYSANTHUS (*aside*).

But she comes again: let sorrow

Be awhile replaced by gladness:—

Ah! Daria, so resolved!<sup>13</sup> (*aloud*,

Not to see or hear me more,

Art thou here?

DARIA.

Deep pondering o'er,

As the question I revolved,

I would have the mystery solved:

'T is for that I 'm here, then see

It is not to speak with thee.

CHRYSANTHUS.

Speak, what doubt wouldst thou de-  
cide?

DARIA.

Thou hast said a God once died  
Through His boundless love to me:  
Now to bring thee to conviction  
Let me this one strong point try . . .

CHRYSANTHUS.

What?

DARIA.

To be a God, and die,  
Doth imply a contradiction.  
And if thou dost still deny  
To my god the name divine,  
And reject him in thy scorn  
For beginning, I opine,  
If thy God could die, that mine  
Might as easily be born.

CHRYSANTHUS.

Thou dost argue with great skill,  
But thou must remember still,  
That He hath, this God of mine,  
Human nature and divine,  
And that it has been His will  
As it were His power to hide—  
God made man—man deified—  
When this sinful world He trod,  
Since He was not born as God,  
And it was as man He died.

DARIA.

Does it not more greatness prove,  
As among the beauteous stars,

<sup>13</sup> The asonante changes here into five-lined stanzas in ordinary rhyme. Three lines rhyme one way and two the other. Poems in this metre are called in Spanish *Versos de arte mayor*, from the greater skill supposed to be required for their composition.

That one deity should be Mars,  
And another should be Jove,  
Than this blending God above  
With weak man below? To thee  
Does not the twin deity  
Of two gods more power display,  
Than if in some mystic way  
God and man conjoined could be?

CHRYSANTHUS.

No, I would infer this rather,  
If the god-head were not one,  
Each a separate course could run :  
But the uncreated Father,  
But the sole-begotten Son,  
But the Holy Spirit who  
Ever issues from the two,  
Being one sole God, must be  
One in power and dignity :—  
Until *thou* dost hold this true,  
Till thy creed is that the Son  
Was made man, I cannot hear thee,  
Cannot see thee or come near thee,  
Thee and death at once to shun.

DARIA.

Stay, my love may so be won,  
And if thou wouldst wish this done,  
Oh! explain this mystery!  
What am I to do, ah! me,  
That my love may thus be tried?

CARPOPHORUS (*within*).

Seek, O soul! seek Him who died  
Solely for the love of thee.

CHRYSANTHUS.

All that I could have replied  
Has been said thus suddenly  
By this voice that, sounding near,  
Strikes upon my startled ear  
Like the summons of my death.

DARIA.

Ah! what frost congeals my breath,  
Chilling me with icy fear,  
As I hear its sad lament :  
Whence did sound the voice?

[*Enter Polemius and soldiers.*

POLEMIUS.

From here:

'T is, Chrysanthus, my intent  
Thus to place before thy sight—

Thus to show thee in what light  
I regard thy restoration  
Back to health, the estimation  
In which I regard the wight  
Who so skilfully hath cured thee.  
A surprise I have procured thee,  
And for him a fit reward :  
Raise the curtain, draw the cord,  
See, 't is death! If this . . .

(*A curtain is drawn aside, and Carpophorus is seen beheaded, the head being at some distance from the body.*)

CHRYSANTHUS.

I freeze!—

POLEMIUS.

Is the cure of thy disease,  
What must that disease have been!  
'T is Carpophorus. . . .

DARIA.

Dread scene!

POLEMIUS.

He who with false science came  
Not to give thee life indeed,  
But that he himself should bleed :—  
That thy fate be not the same,  
Of his mournful end take heed :  
Do not thou that dost survive,  
My revenge still further drive,  
Since the sentence seems misread—  
The physician to be dead,  
And the invalid alive.—

CHRYSANTHUS.

It were cruelty extreme,  
It were some delirious dream,  
That could see in this the cure  
Of the ill that I endure.

POLEMIUS.

It to him did pity seem,  
Seemed the sole reward that he  
Asked or would receive from me :  
Since when dying, he but cried . .

THE HEAD OF CARPOPHORUS.

Seek, O soul! seek Him who died  
Solely for the love of thee!—

CHRYSANTHUS.

DARIA.

What a wonder!



ESCARPIN.

Jove! my own head splits asunder!—

POLEMIOUS.

Even though severed, in it dwells  
Still the force of magic spells.

CHRYSANTHUS.

Sir, it were a fatal blunder  
To be blind to this appalling  
Tragedy you wrong by calling  
The result of spells—no spells  
Are such signs, but miracles  
Outside man's experience falling.  
He came here because he yearned  
With his pure and holy breath  
To give life, and so found death.  
'T is a lesson that he learned—  
'T is a recompense he earned—  
Seeing what his Lord could do,  
Being to his Master true:  
Kill me also: He had one  
Bright example: shall I shun  
Death in turn when I have two?

POLEMIOUS.

I, in listening to thy raving,  
Scarce can calm the wrath thou 'rt  
braving.

Dead ere now thou sure wouldst lie,  
Didst thou not desire to die.

CHRYSANTHUS.

Father, if the death I'm craving . . .

POLEMIOUS.

Speak not thus: no son I know.

CHRYSANTHUS.

Not to thee I spoke, for though  
Humanly thou hast that name,  
Thou hast forfeited thy claim:  
I that sweet address now owe  
Unto him whose holier aim  
Kindled in my heart a flame  
Which shall there for ever glow,  
Woke within me a new soul  
That thou 'rt powerless to control—  
Generated a new life  
Safe against thy hand or knife:  
Him a father's name I give  
Who indeed has made me live,  
Not to him whose tyrant will

Only has the power to kill.  
Therefore on this dear one dead,  
On this pallid corse laid low,  
Lying bathed in blood and snow,  
By this lifeless lodestone led,  
I such bitter tears shall shed,  
That my grief . . .

POLEMIOUS.

Ho! instantly  
Tear him from it.

DARIA (*aside*).

Thus to be  
By such prodigies surrounded,  
Leaves me dazzled and confounded.

POLEMIOUS.

Hide the corse.

ESCARPIN.

Leave that to me  
(*The head and body are concealed*).

POLEMIOUS.

Bear Chrysanthus now away  
To a tower of darksome gloom  
Which shall be his living tomb.

CHRYSANTHUS.

That I hear with scant dismay,  
Since the memory of this day  
With me there will ever dwell.  
Fair Daria, fare thee well,  
And since now thou knowest who  
Died for love of thee, renew  
The sweet vow that in the dell  
Once thou gav'st me, *Him* to love  
After death who so loved thee.

POLEMIOUS.

Take him hence.

DARIA.

Ah! suddenly  
Light descendeth from above  
Which my darkness doth remove.  
Now thy shadowed truth I see,  
Now the Christian's faith profess.  
Let thy bloody lictors press  
Round me, racking every limb,  
Let me only die with him,  
Since I openly confess  
That the gods are false whom we  
Long have worshipped, that I trust  
Christ alone—the True—the Just—

The One God, whose power I see,  
And who died for love of me.

POLEMUS.

Take her too, since she in this  
Boasts how dark, how blind she is.

DARIA.

Oh! command that I should dwell  
With Chrysanthus in his cell.  
In our hearts we long are mated,  
And ere now had celebrated  
Our espousals fond and true,  
If the One same God we knew.

CHRYSANTHUS.

This sole bliss alone I waited  
To die happy.

POLEMUS.

How my heart  
Is with wrath and rage possest!—  
Hold thy hand, present it not,  
For I would not have thy lot  
By the least indulgence blest;  
Nor do thou, if thy wild brain  
Such a desperate course maintain,  
Hope to have her as thy bride—  
Trophy of our gods denied:—  
Separate them.

CHRYSANTHUS.

O the pain!

DARIA.

O the woe! unhappy me!

POLEMUS.

Take them hence, and let them be  
(Since my justice now at least  
Makes amends for mercy past)  
Punished so effectually  
That their wishes, their desires,  
What each wanteth or requires,  
Shall be thwarted or denied,  
That between opposing fires  
They for ever shall be tried:—  
Since Chrysanthus' former mood  
Only wished the solitude  
Whence such sorrows have arisen,  
Take him to the public prison,  
And be sure in fire and food  
That he shall not be preferred  
To the meanest culprit there.  
Naked, abject, let him fare

As the lowest of the herd:  
There, while chains his body gird,  
Let him grovel and so die:—  
For Daria, too, hard by  
Is another public place,  
Shameful home of worse disgrace,  
Where imprisoned let her lie:  
If, relying on the powers  
Of her beauty, her vain pride  
Dreamed of being my son's bride,  
Never shall she see that hour.  
Soon shall fade her virgin flower,  
Soon be lost her nymph-like grace—  
Roses shall desert her face,  
Waving gold her silken hair.  
She who left Diana's care  
Must with Venus find her place:  
'Mong vile women let her dwell,  
Vile, abandoned even as they.

ESCARPIN (*aside*).

There my love shall have full play.  
O rare judge, you sentence well!

CHRYSANTHUS.

Sir, if thou must have a fell  
Vengeance for this act of mine,  
Take my life, for it is thine;  
But my honour do not dare  
To insult through one so fair.

DARIA.

Wreak thy rage, if faith divine  
So offends thee, upon *me*,  
Not upon my chastity:—  
'T is a virtue purer far  
Than the light of sun or star,  
And has ne'er offended thee.

POLEMUS.

Take them hence.

CHRYSANTHUS.

Ah me, to find  
Words, that might affect thy mind!  
Melt thy heart!

DARIA.

Ah, me, who e'er  
Saw a martyrdom so rare?—

POLEMUS.

Wouldst thou then the torment fly,  
Thou hast only to deny  
Christ.

CHRYSANTHUS.

The Saviour of mankind?

This I cannot do.

DARIA

Nor I.

POLEMUS.

Let them instantly from this  
To their punishment be led.—

ESCARPIN.

Do not budge from what you said.  
It is excellent as it is.

CHRYSANTHUS.

Woe is me! but wherefore fear,  
O beloved betrothed mine?—  
Trust in God, that power divine  
For whose sake we suffer here:—  
He will aid us and be near:—

DARIA.

In that confidence I live,  
For if He His life could give  
For my love, and me select,  
He His honour will protect.

CHRYSANTHUS.

These sad tears He will forgive.  
Ne'er to see thee more! thus driven. . .

DARIA.

Cease, my heart like thine is riven,  
But again we 'll see each other,  
When in heaven we 'll be, my brother,  
*The two lover saints of Heaven.*

*(They are led out.)*

SCENE II.—*The hall of a bordel.*

*Soldiers conducting Daria.*

A SOLDIER.

Here Polemius bade us leave her,  
The great senator of Rome.<sup>14</sup> *(exeunt.)*

DARIA.

As the noonday might be left  
In the midnight's dusky robe,  
As the light amid the darkness,  
As 'mid clouds the solar globe:  
But although the shades and sha-  
dows,

Through the vapours of Heaven's dome.

Strive with villainous presumption

Light and splendour to enfold,

Though they may conceal the lustre,

Still they cannot stain it, no.

And it is a consolation

This to know, that even the gold,

How so many be its carats,

How so rich may be the lode,

Is not certain of its value

'Till the crucible hath told.

Ah! from one extreme to another

Does my strange existence go:

Yesterday in highest honour,

And to-day so poor and low!

Still, if I am self-reliant,

Need I fear an alien foe?

But, ah me, how insufficient

Is my self-defence alone!—

O new God to whom I offer

Life and soul, whom I adore,

In Thy confidence I rest me.

Help me, Lord, I ask no more.

*(Enter Escarpin.)*

ESCARPIN.

Where I wonder can she be?

But I need not farther go,

Here she is:—At length, Daria,

My good lady, and soforth,

Now has come the happy moment,

When in open market sold,

All thy charms are for the buyer,

Who can spend a little gold;

And since happily love's tariff

Is not an excessive toll,

Here I am, and so, Daria,

Let these clasping arms enfold . . .

DARIA.

Do not Thou desert Thy handmaid

In this dreadful hour, O Lord!—

*Cries of people within.*

A VOICE *(within)*.

Oh, the lion! oh, the lion!

ANOTHER VOICE *(within)*.

Ho! take care of the lion, ho!

<sup>14</sup> The asonante is single here, consisting only of the long accented o, as in "Rome", "globe", "dome", etc.



ESCARPIN.

Let the lion care himself,  
I 'm engaged and cannot go.

A VOICE (*within*).

From the mountain wilds descending,  
Through the crowded streets he goes.

ANOTHER VOICE (*within*).

Like the lightning's flash he flieth,  
Like the thunder is his roar.

ESCARPIN.

Ah! all right, for I 'm in safety,  
Thanks to this obliging door:  
Lightning is a thing intended  
For high towers and stately domes,  
Never heard I of its falling  
Upon little lowly homes:  
So if lion be the lightning,  
Somewhere else will fall the bolt:  
Therefore once again, Daria,  
Come, I say, embrace me. . . .

(*A lion enters, places himself before Daria, and seizes Escarpin.*)

DARIA.

Oh!

Never in my life did I  
See a nobler beast.

ESCARPIN.

Just so,

Nor a more affectionate one  
Did I ever meet before,  
Since he gives me the embraces  
That I asked of thee and more:  
O god Bacchus, whom I worship  
So devoutly, thou, I know,  
Workest powerfully on *beasts*.  
Tell our friend to let me go.

DARIA.

Noble brute, defend my honour,  
Be God's minister below.

ESCARPIN.

How he gnaws me! how he claws me!  
How he smells! His breath, by Jove,  
Is as bad as an emetic.  
But you need n't eat me, though.  
That would be a sorry blunder,  
Like what happened long ago.

Would you like to hear the story?

By your growling you say no.

What! you 'll eat me then? You 'll  
find me

A tough morsel, skin and bone.

O Daria! I implore thee,

Save me from this monster's throat,

And I give to thee my promise

To respect thee evermore.

DARIA.

Mighty monarch of these deserts,

King of beasts, so plainly known

By thy crown of golden tresses

O'er thy tawny forehead thrown,

In the name of Him who sent thee

To defend that faith I hold,

I command thee to release him,

Free this man and let him go.

ESCARPIN.

What a most obsequious monster!

With his mane he sweeps the floor,

And before her humbly falling,

Kisses her fair feet.

DARIA.

What more

Need we ask, that Thou didst send  
him,

O great God so late adored,

Than to see his pride thus humbled

When he heard thy name implored?

But upon his feet uprising,

The great roaring Campeador<sup>15</sup>

Of the mountains makes a signal

I should follow: yes, I go,

Fearless now since Thou hast freed  
me

From this infamous abode.

What will not that lover do

Who for love his life foregoes!—

(*Goes out preceded by the lion.*)

ESCARPIN.

With a lion for her bully

Ready to fight all her foes,

Who will dare to interrupt her?

None, if they are wise I trow.

With her hand upon his mane,

<sup>15</sup> Champion, or combater, the name generally given the Cid.

Quite familiarly they go  
Through the centre of the city.  
Crowds give way as they approach,  
And as he who looketh on  
Knoweth of the game much more  
Than the players, I perceive  
They the open country seek  
On the further side of Rome.  
Like a husband and a wife,  
In the pleasant sunshine's glow,  
Taking the sweet air they seem.  
Well the whole affair doth show  
So much curious contradiction,  
That, my thought, a brief discourse  
You and I must have together.  
Is the God whose name is known  
To Daria, the same God  
Whom Carpophorus adored?  
Why, from this what inference fol-  
lows?

Only this, if it be so,  
That Daria He defends,  
But the poor Carpophorus, no.  
And as I am much more likely  
His sad fate to undergo,  
Than to be like her protected,  
I to change my faith am loth.  
So part pagan and part christian  
I'll remain—a bit of both. (*Erit.*)

SCENE III.—*The Wood.*

(*Enter NISIDA and CYNTHIA, flying.*)

CYNTHIA.

Fly, fly, Nisida.

NISIDA.

Fly, fly, Cynthia,

Since a terror and a woe  
Threatens us by far more fearful  
Than when late a horror froze  
All our words, and o'er our reason  
Strange lethargic dulness flowed.

CYNTHIA.

Thou art right, for then 't was only  
Our intelligence that owned  
The effect of an enchantment,  
A mere pause of thought alone.

Here our very life doth leave us,  
Seeing with what awful force  
Stalks along this mighty lion  
Trampling all that stops his course.

NISIDA.

Whither shall we fly for shelter?

CYNTHIA.

O Diana, we implore  
Help from thee! But stranger still!—  
Him who doth appal us so,  
The wild monarch of the mountain  
See! a woman calm and slow  
Follows.

NISIDA.

O astounding sight!

CYNTHIA.

'T is Daria.

NISIDA.

I was told

She had been consigned to prison:  
Yes, 't is she: on, on they go  
Through the forest.

CYNTHIA.

Till the mountain

Hides them, and we see no more.

(*Enter Escarpin.*)

ESCARPIN.

All Rome is full of wonder and dis-  
may.<sup>16</sup>

NISIDA.

What has occurred?

CYNTHIA.

Oh! what has happened, say?

ESCARPIN.

Chrysanthus, being immured  
By his stern sire, a thousand ills en-  
dured.

Daria too, the same,  
But in a house my tongue declines to  
name.

It pleased the God they both adore  
Both to their freedom strangely to re-  
store,

And from their many pains  
To free them, and to break their gal-  
ling chains,

<sup>16</sup> The metre changes to an irregular couplet in long and short lines.

Giving Daria, as attendant squire,  
A roaring lion, rolling eyes of fire:—  
In fine the two have fled,  
But each apart by separate instinct  
led

To this wild mountain near.  
Numerianus coming then to hear  
Of the event, assuming in his wrath,  
That 't was Polemius who had oped  
the path  
Of freedom for his son and for the  
maid,  
Has not an hour delayed,  
But follows them with such a nume-  
rous band,  
That, see, his squadrons cover all the  
land.

VOICES (*within*).

Scour the whole plain.

OTHERS (*within*).

Descend into the vale.

OTHERS (*within*).

Pierce the thick wood.

OTHERS (*within*).

The rugged mountain scale.

ESCARPIN.

This noise, these cries, confirm what I  
have said :

And since by curiosity I 'm led  
To sift the matter to the bottom, I  
Will follow with the rest.

CYNTHIA.

I almost die

With fear at the alarm, and yet so  
great

Is my desire to know Daria's fate,  
And that of young Chrysanthus, that  
I too

Will follow, if a woman so may do.

ESCARPIN.

What strange results such strange  
events produce !

The very wonder serves as an excuse.

NISIDA.

Well, we must only hope that it is so.  
Come, Cynthia, let us follow her.

CYNTHIA.

Let us go.

ESCARPIN.

And I with love most fervent,  
Ladies, will be your very humble ser-  
vant. [*Exeunt.*]

SCENE IV.—*A wilder part of the wood  
near the cave.*

(*Enter DARIA guided by the lion.*)

DARIA.

O mighty lion, whither am I led ?  
Where wouldst thou guide me with thy  
stately tread,  
That seems to walk not on the earth,  
but air ?  
But lo ! he has entered there  
Where yonder cave its yawning mouth  
lays bare,

[*The lion enters a cave.*]

Leaving me here alone.

But now fate clears, and all will soon  
be known ;

For if I read aright

The signs this desert gives unto my  
sight,

It is the very place whence echo gave  
Responsive music from this mystic  
cave.

Terror and wonder both my senses  
scare,

Ah ! whither shall I go ?

CHRYSANTHUS (*within*).

Daria fair !

DARIA.

Who calls my hapless name ?  
Each leaf that moves doth thrill this  
wretched frame

With boding and with dread.

But why say wretched ? I had better  
said

Thrice blesséd : O great God whom I  
adore,

Baptize me in those tears that I out-  
pour,

In no more fitting form can I declare  
My faith and hope in thee.

CHRYSANTHUS (*within*).

Daria fair.



DARIA.

Who calls my name? who wakes those  
wild alarms?

(Enter *Chrysanthus*.)

CHRYSANTHUS.

Belovéd bride, 't is one to whom thy  
charms

Are even less dear than is thy soul,  
ah! me,

One who would live and who will die  
with thee.

DARIA.

Belovéd spouse, my heart could not  
demand

Than thus to see thee near, to clasp  
thy hand,

A sweeter solace for my long dismay,  
And all the awful wonders of this day.

Hear the surprising tale,

And thou wilt know . . .

VOICES (*within*).

Search hill.

OTHERS.

And plain.

OTHERS.

And vale.

CHRYSANTHUS.

Hush! the troops our flight pursuing  
Have the forest precincts entered.<sup>17</sup>

DARIA.

What then shall I do, Chrysanthus?

CHRYSANTHUS.

Keep thy faith, thy life surrender:—

DARIA.

I a thousand lives would offer:

Since to God I'm so indebted

That I'll think myself too happy

If 't is given for Him.

POLEMIUS (*within*).

This centre

Of the mountain, whence the sun  
Scarcely ever is reflected—

This dark cavern sure must hold them.

Let us penetrate its entrails,

So that here the twain may die.

DARIA.

One thing only is regretted

By me, in my life thus losing,

I am not baptized.

CHRYSANTHUS.

Reject then

That mistrust; in blood and fire<sup>18</sup>

Martyrdom the rite effecteth:—

(Enter *Polcmius and Soldiers*.)

POLEMIUS.

Here, my soldiers, here they are,

And the hand that death presents  
them

Must be mine, that none may think

I a greater love could cherish

For my son than for my gods.

And as I desire, when wendeth

Hither great Numerianus,

That he find them dead, arrest them

On the spot, and fling them headlong

Into yonder cave whose centre

Is a fathomless abyss:—

And since one sole love cemented

Their two hearts in life, in death

In one sepulchre preserve them.

CHRYSANTHUS.

Oh! how joyfully I die!

DARIA.

And I also, since the sentence

Gives to me the full assurance

Of a happiness most certain

<sup>17</sup> The metre changes to the double asonante in *e-e*, which continues to the end of the drama.

<sup>18</sup> *Baptism by blood and fire through martyrdom*. Calderon refers here evidently to the words of St. John the Baptist: "He shall baptize you in the Holy Ghost and fire"—*St. Matth.*, c. iii. v. ii. The following passage in the Legend of St. Catherine must also have been present to his mind:

"Et cum dolerent, quod sine baptismo decederent, virgo respondit: Ne timeatis, quia effusio vestri sanguinis vobis baptismus reputabitur et corona". *Legenda Aurea*, c. 167.

On the day this darksome cave  
Doth entomb me in its centre.

*(They are cast into the abyss.)*

POLEMIUS.

Cover the pit's mouth with stones.  
*(A sudden storm of thunder and lightning: Enter Numerianus, Claudius, Aurelius, and others.)*

NUMERIANUS.

What can have produced this tempest?

POLEMIUS.

When within the cave they threw  
them,

Dark eclipse o'erspread the heavens.

CLAUDIUS.

Shadowy shapes, phantasmal shadows  
Are upon the wind projected.

CYNTHIA.

Lightnings like swift birds of fire  
Dart along with burning tresses.

CLAUDIUS.

Lo! an earthquake's awful shudder  
Makes the very mountains tremble.

POLEMIUS.

Yes, the solid ground upheaveth,  
And the mighty rock descendeth  
O'er our heads.

NISIDA.

While on the instant

Dulcet voices soft and tender  
Issue from the cave's abysses.

NUMERIANUS.

Rome to-day strange sights presenteth,  
When a grave exhibits gladness,  
And the sun displays resentment.  
*(A choir of angels is heard singing from within the cave.)*

"Happy day, and happy doom,  
May the gladsome world exclaim,  
When the darksome cave became  
Saint Daria's sacred tomb".

*(A great rock falls from the mountain, and covers the tomb, over it is seen an angel.)*

ANGEL.

This great cave which holds to-day  
In its breast so great a treasure,  
Never shall by foot be trodden;—  
Thus it is I've sealed and settled  
This great mass of rock upon it,  
Which doth shut it up for ever.  
And in order that their ashes  
On the wind be ne'er disperséd,  
But while time itself endureth  
Shall be honoured and respected,  
This brief epitaph, this simple  
Line shall tell this simple legend  
To the ages that come after:  
"Here the bodies are preservéd  
Of Chrysanthus and Daria,  
*The two lover-saints of Heaven*".

CLAUDIUS.

Wherefore humbly we entreat  
Pardon for our many errors.

ART. III.—*Biblical Manuscripts of the Early Irish Church.*  
By VERY REV. PATRICK F. MORAN, D.D.

1. **T**HE lives of the early saints of Ireland abound with examples which prove the zeal of our fathers in transcribing the Sacred Scriptures, and the vigilance with which they sought to guard the copies of the Sacred Volume from even the slightest faults. Indeed the Venerable Bede attests that in his own time so general was the study of the Sacred Scriptures in the Latin tongue, that, though Angles, Britons, Picts, and Irish, had each their own peculiar language, yet the Latin had become *the common language* of all.<sup>1</sup> A few facts will best illustrate this feature of our early Church.

Nennius writes, regarding our apostle, St. Patrick, that he bequeathed to his spiritual children no fewer than three hundred copies of the Gospels, written with his own hand. Again, in the "Tripartite Life" of the same Saint it is recorded that when he proceeded to Tara to announce the tidings of redemption to King Laoghaire and the assembled Druids, he wished to be accompanied by the youthful Benen, who bore on his shoulders the sacred volume of the Scriptures; and subsequently, when St. Mac Carthen was commissioned to found the see of Clogher, it is expressly stated that our Apostle bestowed on him as a precious treasure a copy of the Holy Gospels.

It is recorded of St. Finbarr, founder of the city and see of Cork, that when the religious of more than twenty monasteries and convents chose him for their spiritual head, "he placed in each of these houses a *ministir*,<sup>2</sup> and the seven Books of the Law and the four Books of the Gospel, and there was not one of them to which he did not bring some gift belonging to the Church of God".<sup>3</sup>

In the very ancient scholia on the Felire of St. Ængus, preserved in the *Leabhar Breac*, the following account is given of the words used by St. Cummian Foda, when instructing the king of Connaught, Guaire Aidhne, at the church of Iniskeltra in Lough Derg:

<sup>1</sup> *Hist. Ec.*, lib. i. cap. i.

<sup>2</sup> *Ministir* probably, like the mediæval Latin word *ministerium*, means a *Cumdach*, or shrine. The abbot Dungal writes to a French abbot about the year 810: "Misi aliquid de argento per ill. vestrum servientem, et volo rogare, si vobis facile est, ut jubeatis uni bono et perito de vestris fabricare illud et facere inde ministerium, calicem et patenam" (*Epistolæ Carolinæ*, edit. Jaffé, Berlin, 1867, pag. 435).

<sup>3</sup> *Irish Life of St. Finbarr*, Curry MSS. of Catholic University, pag. 9.



"Amongst other things St. Cumin Foda said to Guaire: O king! what wouldst thou desire to have this church filled with to use according to thy will? Guaire answered: 'I would wish to have treasures of gold and silver as much as this church could contain, not from any lust of worldly wealth, but that I might employ them for the salvation of souls, the good of God's saints, the building of churches, and the benefit of the poor of Christ'. The holy man of God, moved by the Holy Ghost, said to the king: 'The Lord will favourably regard thy goodly wish, and will give thee great wealth, to be piously employed in the salvation of thy soul, and then shalt thou possess the kingdom'. Guaire exulting in that prophetic promise, and giving great thanks to God, said: 'And thou, O servant of God, what things wouldst thou desire to have this church filled with?' St. Cumin Foda replied: 'I would wish to have as many sacred books as this church could hold, to be given to those who seek for divine wisdom, to spread amongst the people the saving knowledge of Christ, and to turn them from the service of the devil to a faithful keeping of God's commandments'.<sup>4</sup>

Baithen was a favourite disciple of St. Columba. Having transcribed a copy of the Psalter, he brought it to his master that, as usual, it might be revised by one of the brethren; but St. Columba, knowing by spiritual intuition how free it was from every fault, told him he might spare all further trouble, as his transcript contained but a single error, only one vowel *i* being omitted in it.<sup>5</sup>

2. The early Biblical MSS. of our Church shared the fate of the other ancient monuments of our island. Many of them were lost when the Irish monasteries were plundered by the Danes in the eighth and ninth centuries. Many, again, were destroyed in the ages of turmoil and barbarism consequent on the Anglo-Norman invasion; but more disastrous still was the Reformation period, when the storm of persecution swept away the time-honoured landmarks of our ancient faith, and brought destruction on the records of the piety of our fathers. Nevertheless, a considerable number of Irish Biblical MSS. remains to us, partly preserved through the devoted reverence of our faithful people, and partly treasured up in distant countries, whither they were borne by Irish missionaries in the golden age of faith. The words which were written twenty-three years ago on this subject by the late lamented Dr. Todd,

<sup>4</sup> *Felire of Angus*, at 25th March, in *Leabhar Breac*. For an account of this MS., see O'Curry's *Lectures*, vol. i, p. 352, *seq.*

<sup>5</sup> Colgan, *Acta Sanctorum*, p. 426.

convey an accurate statement of the case, and will be read with interest by all who have at heart the literature of our country: "I have often felt the greatest wonder, not only at the number and almost incredible antiquity of the Irish Biblical manuscripts that still remain, but at the amazing ignorance that exists about them, and the small amount of interest they appear to excite. Whoever examines the annals of Ireland, will find them one mass of records of burnings and slaughters, battles, murders, plundering of churches, and sacking of monasteries. Amidst all these enormities we may be assured that books were not spared; and when we remember that, at the period of the Reformation, church books were the especial object of destruction, commanded to be sought out and destroyed by act of parliament—that again, during the Commonwealth, this was still more remarkably the case, and that then not only the ancient ritual books, missals, antiphonaries, etc., which of course were peculiarly obnoxious, but also the still more precious manuscripts of the Gospels, the Psalms, and other parts of the Bible, were indiscriminately destroyed as remnants of Popery and monuments of superstition: when we remember these things, we may well wonder that any such manuscripts still remain, and we must also conclude that the original number of such books must have been vast indeed, to render it possible for so many as we now possess to have survived such long-continued and wholesale destruction".<sup>6</sup>

To proceed with order, I will first mention the few fragments of the Old Testament that have come down to our times, and then I will proceed to the MSS. of the New Testament.

3. The Psalter of St. Columbkille is the most precious fragment of the Old Testament Irish MSS. that is now known to exist. This great apostle of North Britain died at Iona in the year 597, and on the vigil of his death was engaged with his loved disciple Baithen in copying the Psalter. We find the narrative thus detailed by Adamnan: "St. Columba having announced to one of his religious that that day would be his last in this world, ascended an adjoining eminence, and lifting up his hands, blessed the monastery. Returning thence, he reclined in a cell belonging to the monastery, *writing a Psalter*, and having come to that verse in Psalm xxxiii. '*Inquirentes autem Dominum non deficient omni bono*', he said, 'The page is here ended, I must now desist; let what follows be written by Baithen'. This disciple succeeded St. Columbkille as abbot of Iona; and Adamnan adds, "that, even as the verse just cited

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<sup>6</sup> *Irish Eccles. Journal*, Sept. 1846, p. 36.

appropriately marked the close of the earthly career of that great saint, so the following verse: '*Venite, filii, audite me, timorem Domini docebo vos*', was befittingly allotted to one who was chosen to be his heir, both in teaching and in writing".<sup>7</sup>

Another fact mentioned in St. Columba's life proves him to have been familiar with the Psalter at a much earlier stage of his missionary career. "He was seated with a few of the religious", says his biographer, "near the fortress of king Brude, on the banks of Lough Ness. They began to chaunt the evening psalms, according to their custom, when some Magi or Druids came around them, and endeavoured, by making loud noises, to prevent the sound of their psalmody being heard by the people of the neighbourhood. But St. Columba, with a voice of thunder, which drowned the outcry of the Druids, and struck the king and people with inexpressible awe, began to entone the psalm: *Eructavit cor meum verbum bonum*".<sup>8</sup>

The Psalter of St. Columba which has been handed down to our times is known by the Irish name of *Cathach*, i. e., the "Book of Battle",<sup>9</sup> and is at present deposited in the Royal Irish Academy in this city. It is encased in a richly-ornamented silver shrine, the inscriptions of which bring us back to the eleventh century, and for more than a thousand years it has been guarded, as a family treasure, by the sept of the O'Donnells. The most modern inscription on the shrine records that it was partially restored in the year 1723 by Daniel O'Donel, who fought at the battle of the Boyne, and subsequently attained the highest honours in the Austrian army. The ancient inscription dates from the eleventh century, and informs us that the rich cover was made by order of

<sup>7</sup> *Adamnan*, edit. Reeves, page 233.

<sup>8</sup> Reeves's *Adamnan*, p. 73.

<sup>9</sup> O'Donnell, in his life of St. Columbkille, explains in the following manner the origin of this name and the peculiar circumstances under which this transcript of the Psalter was made. On one occasion, he says, St. Columbkille paid a visit to St. Finnen, of Dromfnn, in Ulster, and while on the visit used, when reciting his daily Office, St. Finnen's copy of the Psalms. Admiring the accuracy of this text, and anxious to have a transcript of it, he each day remained in the church after the others had gone away and devoted some time to make a hurried copy. This was observed by St. Finnen's companions, who reported it to the Saint, but he took no notice of it, waiting until the copy was finished; he then sent to St. Columbkille, saying, that as the original was his and he had given no permission to copy it, the transcript should be also his. St. Columbkille refused to comply with this demand. The matter was then referred to the Monarch in Tara, and he gave the remarkable judgment, which for centuries was proverbial throughout Ireland, that "as to every cow belongeth her calf, so to every book belongeth its copy". The warlike tribe of Tirconnell, to which St. Columbkille belonged, was enraged at this, and assembled an army to assert the rights of the saint. A battle ensued, in which the royal army was routed with great loss (*Colgan, Trias Thaum.*, page 409).



Cathbar O'Donnell (son of Gillachrist, who died in A.D. 1038), and of Domhnall Mac Robhartaigh, successor of St. Columba in the monastery of Kells, who died, according to the Four Masters, in 1098. To any one acquainted with the usages of our early Church, the fact of our MS. having been thus encased at such a period will be a sufficient proof of the venerable character of the MS. itself. Independent, however, of all this, the best authorities on the matter of our ancient MSS. attest that the character of the vellum and the writing would suffice to bring back its date to the age of St. Columba. We may add that, as appears from an entry in the Four Masters (*ad an.* 1497), this MS. was borne with the army of Con O'Donnell, as the great reliquary of Tirconnell, to ensure success in his military undertakings.

The *Cuthach* at present consists of fifty-eight membranes written in the cursive Irish hand. Each membrane is about seven inches long and four inches broad. The text, except at the extremities of each page, is in excellent preservation, and towards the middle and close of the volume retains the rubrics which marked the heading of each psalm. A fac-simile of the two first verses of Psalm ciii. is given by Betham: they are as follows:

"BENEDIC ANIMA MEA DOMINO ET OMNIA QUÆ INTRA ME SUNT NOMINI SANCTO EJUS. BENEDIC ANIMA MEA DOMINO ET NOLI OBLIVISCI OMNES RETRIBUTIONES EJUS".<sup>10</sup>

Betham also cites the verse 18 of Psalm cxiii., which of itself would suffice to identify the text of St. Columba with our Vulgate, and runs thus:

"ILLIC PASSERES NIDIFICABUNT: ERODI DOMUS DUX EST EORUM".

I will add a few passages copied from the original MS. of St. Columbkille. Thus Psalm cxxxiv. begins:

"JUDICA DOMINE NOCENTES ME, EXPUGNA IMPUGNANTES ME. ADPRÆHENDE ARMA ET SCUTUM ET EXSURGE IN ADJUTORIUM MIHI. EFFUNDE FRAMEAM ET CONCLUDE ADVERSUS EOS QUI PERSEQUUNTUR ME. DIC ANIMAE MEAE SALUS TUA EGO SUM. CONFUNDANTUR ET REVEREANTUR QUAERENTES ANIMAM MEAM".

Psalm xxxvi. runs as follows:

"NOLI EMULARI IN MALIGNANTIBUS NEQUE ZELAVÉRIS FACIENTES INIQUITATEM QUONIAM TAMQUAM FENUM VELOCITER ARESCENT ET QUEMADMODUM HOLERA HERBARUM CITO DECIDENT. SPERA IN DOMINO ET FAC BONITATEM ET INHA-

<sup>10</sup> *Antiquar. Res.*, page 112.

BITA TERRAM ET PASCERIS IN DIVITIIS EJUS. DELECTARE IN DOMINO ET DABIT TIBI PETITIONES CORDIS TUI. REVELA DOMINO VIAM TUAM ET SPERA IN EO ET IPSE FACIET ET EDUCET QUASI LUMEN JUSTITIAM TUAM ET JUDICIUM TUUM TAMQUAM MERIDIEM. SUBDITUS ESTO DOMINO ET ORA EUM. NOLI EMULARI IN EO QUI PROSPERATUR IN VIA SUA IN HOMINE FACIENTE INJUSTITIAS. . . . . DECLINA A MALO ET FAC BONUM ET INHABITA IN SÆCULUM SÆCULI QUIA DOMINUS AMAT JUDICIUM ET NON DERELINQUET SANCTOS SUOS, IN ÆTERNUM CONSERVABUNTUR. INJUSTI PUNIENTUR ET SEMEN IMPIORUM PERIBIT, JUSTI AUTEM HÆREDITABUNT TERRAM ET INHABITABUNT IN SÆCULUM SÆCULI, OS JUSTI MEDITABITUR SAPIENTIAM ET LINGUA EJUS LOQUETUR JUDICIUM, LEX DEI EJUS IN CORDE IPSIUS".

Psalm lxxv. has the rubric: "*Psalmus David: vox Apostolorum ad populum*". It begins, "JUBILATE DEO OMNIS TERRA, PSALMUM DICITE NOMINI EJUS".

Psalm lxxv. has also the rubric, "*In finem in laudibus Asaph, canticum . . . . . vox Ecclesiæ ad Christum*". Its first verses are as follows:

"NOTUS IN JUDÆA DEUS, IN ISRAHEL MAGNUM NOMEN EJUS. ET FACTUS EST IN PACE LOCUS EJUS ET HABITATIO EJUS IN SION. IBI CONFREGIT POTENTIA ARCUM ET SCUTUM ET GLADIUM ET BELLUM. INLUMINAS TU MIRABILITER DE MONTIBUS ÆTERNIS, TURBATI SUNT OMNES INSIPIENTES CORDE".

The reading "*confregit potentia arcum*" is peculiar to this MS. In the margin is written the word *diabolus*, probably meaning that the sacred text here figuratively portrayed the triumph of Christ over Satan.

From these examples it must be sufficiently evident that the psalter of St. Columbkille presents to us a very ancient copy of the Vulgate text of the Psalms, surpassed in antiquity by but few of the continental psalters. I will conclude the notice of this venerable MS. with the words of our late Celtic master, Eugene O'Curry:

"The *Cathach* consists of a highly ornamented shrine or box, enclosing a fragment of a copy of the Psalms on vellum, consisting of fifty-eight leaves, written on both sides. All the leaves before that which contains the psalm xxxi. are gone, but the leaves from this to the psalm cvi. still remain. The writing is of a very ancient character . . . . . When we recollect that this fragment was written about thirteen hundred years ago, by one whose name, next to that of our great apostle St. Patrick, has held the highest place in the memory of the people of his

own as well as of foreign countries, we have reason indeed to admire, and reason to be proud of the intense and tenacious devotion which could, under most unfavourable circumstances, preserve even so much of so ancient and fragile a monument".<sup>11</sup>

4. The Rev. Dr. Reeves was betrayed into an error when he wrote that "of all the Bibles which existed, not one copy of the Old Testament has been preserved, or of any part thereof, except a mutilated copy of the Psalms of David; and the existence of this we owe to the veneration in which it was held, being supposed to be in St. Columba's handwriting, and encased in a costly shrine of silver"<sup>12</sup>. This is not correct. An Irish Psalter used by St. Salaberga, who was trained to piety by the disciples of St. Columbanus, is preserved, together with her relics, at Laon in France<sup>13</sup>. The Commentary of St. Columbanus on the Psalms, so rich in its Celtic glosses, and preserved in the Ambrosian Library, Milan, retains a great part of the text of the Psalter.<sup>14</sup> A small Cottonian MS. marked *Galba A. 5*, which gives a few of the Psalms, is pronounced by Westwood to be Irish,<sup>15</sup> and he gives a *fac simile*, which is undoubtedly Irish, of the following verses:

"BENEDICAM DOMINE, IN OMNI TEMPORE, SEMPER LAUS EJUS IN ORE MEO. IN DOMINO LAUDABITUR ANIMA MEA, AUDIANT MANSUETI ET LAETENTUR. MAGNIFICATE DOMINUM MECUM ET EXALTEMUS NOMEN EJUS IN IDIPSUM. EXQUISIVI DOMINUM ET EXAUDIVIT ME ET EX OMNIBUS TRIBULATIONIBUS MEIS ERIPUIT ME".

Dr. Zeller, the learned librarian of Zurich, to whom we were already indebted for the recovery of Dorbhene's long-lost autograph of Adamnan's Life of St. Columbkille,<sup>16</sup> was the first to call attention to another Irish Psalter preserved in the town

<sup>11</sup> *Lectures*, i. 327-332.

<sup>12</sup> *Memoir of the Book of Armagh* by W. Reeves, D.D. 1681, pag. 1.

<sup>13</sup> See O'Connor's *Rer. Hib. Scriptores*, l. cccxii. seqq. : and Bolland, *Acta SS.*

<sup>14</sup> Vallarsi, in his edition of the *Opera S. Hieronymi*, vol. 7, appendix, has published, as a specimen of St. Columban's work, a commentary on the 1st, 3rd, and 4th psalms. It is only the commentary on the 1st psalm, however, that really belongs to our saint. The commentary on the 3rd and 4th psalms is also from the Ambrosian library, but from a quite different MS., and is probably the work of Florus. By some error the various extracts supplied to Vallarsi from the Ambrosian library became mixed up together, and the Comm. on all three psalms was referred to St. Columban. Zeuss, in his *Gram. Celtica*, repeats this mistake, although he visited the Ambrosian library, and looked at the original MS. Cowper, in appendix A to his official report on the *Foedera*, reprints the statement of Vallarsi, and thus the whole extract still passes as the genuine work of St. Columban! See *Report on Foedera*, app. A, pag. 175.

<sup>15</sup> *Paleogr. Sac.* "Irish MS.," pag. 4.

<sup>16</sup> See Preface to Reeves's *Adamnan's Life of St. Columba*, pag. xxiii.



library at Basel.<sup>17</sup> It is marked A. vii. 3, and gives the Greek text of the Psalms with the Latin Vulgate interlinear version. This MS. belongs to the eighth or ninth century, and, from the lock fastened on the binding, seems to have been intended for public use in the sacred liturgy. It is to be regretted that the last five psalms are wanting in this important MS. Some hymns and other liturgical pieces are inserted in a contemporary hand at the beginning and end of the book. Dr. Todd makes mention of some of these hymns in his edition of the *Liber Hymnorum* ("Publications of the I. A. S.", for 1855, pag. 55), and the Bishop of Brechin, in the Preface to the *Missal of Arbuthnott*, has since published further extracts.<sup>18</sup> Both of these distinguished writers, however, omitted all reference to a prayer which is written in the same Irish hand, and follows immediately after, or rather forms part of, the fragment *De conscientiae reatu ante Altare*, published by the Bishop of Brechin. It is, perhaps, the sweetest and most striking prayer that has come down to us from our early Church, and I am sure I need offer no apology for here inserting it in full:

"Precor vos omnes sancti Angeli et Archangeli, Virtutes Potestates Dominationes Throni Principatus Cherubim ac Seraphim et omnes sanctae virtutes coelestes, milia milium decies centena milia qui assistitis et ministratis ante claritatem Dei, precamini pro me pium Dominum ut indulgeat mihi omnia peccata mea et perducatur me ad vitam æternam.

"Precor te Sancta Maria mater Domini nostri Jesu Christi semperque virgo ut digneris intercedere pro me misero.

"Precamini pro me sancti Martyres innocentesque Christi, qui sequimini Dominum nostrum Jesum Christum quocumque ierit.

"Precamini pro me omnes sanctae virgines quae cum sancta Maria exultatis in gloria,

"Precamini pro me omnes sancti Apostoli, Joannes Baptista, Petre, Paule, Andrea, Jacobe, Joannes Evangelista, Thoma, Philippe, Jacobe, Bartholomaeae, Matthaeae, Simon Thadei, et Stephane.

"Precamini pro me omnes sancti et electi Dei quicumque gratiam Dei habetis per vos et illum precor qui vobis tantam gratiam contulit: Dignare me exaudire Domine Jesu Christe qui cum Patre vivis et regnas in saecula saeculorum. Amen.

<sup>17</sup> In *Bilder und Schrifzüge in den Irishen Manuscripten der Schweizerischen Bibliotheken*, published among the Papers of the Antiquarian Society of Munich in 1851, and translated by Dr. Reeves for the *Ulster Journal of Archaeology*, July, 1860.

<sup>18</sup> *Liber Ecclesiae Beati Terenani de Arbuthnott*, edited by A. P. Forbes, Bishop of Brechin, 1864, pag. xl. seqq.

"Et ego te Domine Jesu Christe peto ut tu ad Patrem petas pro me Qui dignatus es dicere Quodcumque petieritis Patrem in nomine meo det vobis.

"Ego peto ut accipiam,

"Ego quaero ut inveniam,

"Ego pulso ut aperiatur mihi janua tua sancta,

"Remitte mea peccata et concede mihi vitam aeternam.

"Et tam pro me quam pro omnibus precor.

"Dignare me exaudire, dulcissima pietas, adjuva pastores et omnem populum Catholicum.

"Libera eos de peccato et de manibus inimicorum.

"Adjuva omnes animas quæ ad me pertinent et quicumque me rogaverint ut precarer pro eis.

"Obsecro Domine Deus piissime ut liberes illos a peccato qui mihi bona faciunt propter te.

"Redde illis bona in vitam aeternam.

"Et libera servos et ancillas tuas.

"Da eis sanctam perseverantiam in bono et qui mala volunt aut faciunt da illis indulgentiam.

"Indulge mihi misero.

"Libera me de jactantia, de vana gloria, de pravis cogitationibus diabuli, de gastrimargia, de acedia et de omnibus inimici artibus per quas animae in infernum demerguntur.

"Deus Deus meus ad te de luce vigilo *usque ad finem*".

5. There is yet another fragment of the Old Testament Scriptures<sup>19</sup> to which I would wish to call attention. It is the beautiful text of the Psalm "*Beati Immaculati*", which is preserved in the Library of St. Isidore's at Rome, and rivals in antiquity the venerable Psalter of St. Columbkille, which just now engaged our attention.

This MS. formerly belonged to the Franciscan convent of Donegal, and it was long cherished in the family of Mac Brody as an heir-loom of St. Caimin of Inniskeltra, being traditionally venerated as written by the hand of that great saint. Colgan, treating of St. Caimin, says:

"He is supposed to have written a commentary on the Psalms, and we have seen with our own eyes his notes on Psalm cxviii. (the *Beati*) written, according to tradition, with his own hand".<sup>20</sup>

<sup>19</sup> Westwood, in his magnificent and costly work just published, mentions three other psalters, proceeding from the Irish school, and dating from the ninth or tenth century. One is preserved at St. John's College, Cambridge, No. C. 9, another in the *Cottonian Psalter* (No. "*Vitellius*" F. xi.); the third is known as the *Psalter of St. Owen*, and is preserved in the public library of Rouen. See "*Fac-similes of the Miniatures and Ornaments of Anglo-Saxon and Irish MSS.*" By J. O. Westwood, M.A., London, 1868.

<sup>20</sup> *Acta SS.*, page 746.

Ware writes : " St. Caimin is thought to have written a comment on the Psalms : for among the books of the convent of Franciscans at Donegall, there were some very ancient fragments on Psalm cxix. (cxviii. of the Vulgate), which, according to tradition, he writ with his own hand".<sup>21</sup>

Usher also makes mention of the *Psalter of St. Caimin*, and adds : " St. Caimin of Inishkealtair belonged to the third order of Irish saints, and died, according to the Annals of Innisfail, about the year 653. . . . Inish-keltra is situated in Loch Derg, into which the Shannon falls about sixteen miles from Limerick. There was a psalter, of which I could see only one quaternio, most accurately divided with marks and asterisks, being collated with the Hebrew text on the upper part of the page, and short scholia being added on the outer margin ; and it was the common tradition that it was written by St. Caimin's own hand".<sup>22</sup>

There can be but little doubt that the six vellum leaves now preserved in St. Isidore's are the same that were known to Usher, Ware, and Colgan in the seventeenth century. The first page still bears inscribed on it, "*Ex libris conventus de Dunnagall*", and it also presents a memorandum in the Irish language in the handwriting of the illustrious Franciscan Michael O'Clery, which we here print in the original, together with a literal translation :

"Do péirí gnaḱchuimne  
Chlōimne meic bhruidēda  
(flan aḡur beirnar) aḡaial  
do cūalattar aḡa n-aḡair  
aḡur aḡa ḡaḡ ḡo coitḡionn  
ar é Caimin naom ó mūr ceal-  
tra for loḡ veirce veirce  
ituaḡmuman do rccuob an  
leabair inna raibe an duill-  
ennra, hī maḡtanarī fīunne  
do beir acca n-aḡr ealaḡna  
rīn, óir ir ittermonn Chaimin  
atao in . . . aḡur in ar-  
trebas aḡur arīnrīr nempu.  
ar faradāam meirē an braidair  
boḡt Miceal ó Clérūḡ ḡo  
ffacaḡar . . . bhruidēda  
na coimneāda ittermon Caimin

"According to the tradition of the sons of Mac Brody, Flan and Bernard, as it was handed down to them from their father and people, it was Caimin, the saint from Inis Cealtra on Lough Derg, in north Munster, who wrote the book in which this leaf was. I doubt not that that learned family has spoken truly ; for it is in the Termon lands of Caimin they have lived and resided, as well as their ancestors before them. It is well for me, the poor brother, Michael O'Clery, that the said Mac Brodys have been resi-

<sup>21</sup> Ware, *Irish Writers*, page 32.

<sup>22</sup> *Britt. Ecclesiar. Antiqq.*, vol. vi. page 544.



min, agus a clann iad na  
eccrom. Διαδορειν agus  
διαδοματ ο ουδ . . . οο  
ιασ na ουilleana po οο lea-  
bari samra, an briaθair pem-  
raite, agus suirdeo zac don  
oor . . . ari ari nanman-  
naib oiblinib".

dents in the Termon lands of  
Caimin, and their children  
after their decease. It was  
they and Dermot O'Duib . . .  
who gave these leaves of the  
book to me, the aforesaid poor  
friar, and may each person  
who reads pray for the souls  
of both of us".

St. Caimin of Iniskeltra died in the year 653, and his feast  
is marked in the Martyrology of Donegal on the 24th of March.  
Thus this MS., if written by him, should be referred to the seventh  
century, and it is not too much to say that the beautiful style  
of writing, and especially the large uncial text, as well as the  
vellum itself, are precisely such as we should expect from that  
golden era of our monasteries.

The explanation of the letter *Aleph* (with which in the  
Hebrew text the first eight verses of Psalm cxviii. begin), and  
the first page of the text itself, will serve as a specimen of this  
venerable fragment:

"Ut meritum divini carminis honore tituli possit agnoscī est  
etiam ebreis elimentis ad rudes et docibiles in scola Christi po-  
pulos instituendos tali ordine depictus ut ab unaquaque littera  
octoni versus incipiant ubi misterium puto resurrectionis et  
verae circumsisionis ostensum. Joseph vero refert in libris arcaio-  
logiae hunc psalmum et cxliiii. et Deuteronomi canticum ele-  
giaco metro esse compositos, quia scilicet prior versus sex pedi-  
bus constet et inferior uno minus in pentrametrum finiunt. Per  
totum Psalmum universalis sanctorum chorus loquitur qui ab  
initio mundi sive fuerunt sive sunt sive futuri esse creduntur  
inter quos reperiuntur Apostoli, profetae, martires, confessores,  
Ecclesiastici ordines qui sancta Domino in dignitate famulan-  
tur. Quia ergo in singulis quibusque elementis secundum in-  
terpretationem eorum debent intelligi quae sequuntur. Bene  
prima littera Aleph doctrina interpretatur in qua immaculatis in  
via Domini beatitudo æterna promittitur".

"BEATI IMMACULATI IN VIA QUI AMBULANT IN LEGE DO-  
MINI BEATI QUI SCRUTANTUR TESTIMONIA EJUS IN TOTO  
CORDE EXQUIRUNT EUM. NON ENIM QUI OPERANTUR INI-  
QUITATEM IN VIIS EJUS AMBULAVERUNT. TU MANDASTI  
MANDATA TUA CUSTODIRI NIMIS. UTINAM DIRIGANTUR VIAE  
MEAE AD CUSTODIENDAS JUSTIFICATIONES TUAS. TUNC NON  
CONFUNDAR CUM PERSPEXERO IN OMNIBUS MANDATIS TUIS.  
CONFITEBOR TIBI IN DIRECTIONE CORDIS IN EO QUOD DEDICI  
JUDICIA JUSTITIAE TUAEE..."

6. The *Book of Armagh*, now preserved in the library of Trinity College, Dublin, is the only MS. of the early Irish Church now known to exist that contains the whole of the Sacred Scripture of the New Testament. It is a small quarto volume, about eight inches in height and six in breadth, consisting of two hundred and twenty vellum leaves, written on each side, and in double columns. The writing is in the small cursive Irish character, and is throughout remarkably distinct and uniform. Dr. Graves, now Protestant Bishop of Limerick, aided by Eugene O'Curry, succeeded in deciphering the colophon, which registers the name of the scribe, *Ferdomnach*, by whom the volume was written, and of Torbach, the Archbishop of Armagh, for whom it was transcribed.<sup>23</sup> Now, *Ferdomnach*, "the wise and very admirable scribe of Armagh",<sup>24</sup> died, according to the Four Masters, before the middle of the ninth century; and Torbach held the primatial see only for one year, dying in 808.<sup>25</sup> Thus we may safely assert, without fear of error, that the *Book of Armagh* has outlived the vicissitudes of ten centuries and a half, and dates from the first years of the ninth century. What still gives more importance to it, however, is, that it was copied from older texts, which, even at that early date, were partly obliterated through age, and some of which at least were supposed to have been written by St. Patrick's own hand. The text of the Book of Armagh is the Latin Vulgate, but, as is usual in the Irish MSS., with many important variations.

This MS. was held in the highest veneration throughout the whole of Ireland. It was generally styled the "Canon of Patrick". As early as the year 937<sup>26</sup> a rich case was made for it by Donogh, son of Flann, monarch of Ireland. When, in the year 1004, King Brian Boromhe made his royal progress as far as Armagh, this MS., as the most precious record that could be

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<sup>23</sup> See an interesting paper on "the Date of the Book of Armagh", by Rev. Charles Graves, in *Proceedings of the Royal Irish Academy*, vol. iii. The colophon is thus read by Dr. Graves: "*Ferdomnach hunc librum (bene) dictante Torbach Herede Patricii scripsit*".

<sup>24</sup> *Annals of the Four Masters*, ad an. 844.

<sup>25</sup> *Ibid.*, ad an. 807. At the end of the Gospel of St. Matthew is the half-Latin memorandum, written in Greek letters, as follow: "εχπλικιτ αευανγελιων κατα ματτηνυμ σκριπτνυμ ατκεν φινιτνυμ ιν φηρια ματτη". This shows that this portion of the Gospel was finished on the Feast of St. Matthew, the 21st of September. Now Torbach held the primacy, according to the catalogues of the Psalter of Cashel and the *Leabhar Breac*, for a single year, and died on the 16th July (Colgan, *Tr. Th.*, p. 294). Thus, the feast of St. Matthew, on which the Gospel was finished, must have been the 21st of September, 807.

<sup>26</sup> "The Canon of Patrick was encased by Donogh, son of Flann, king of Ireland".—*Annals of Ireland*, by the Four Masters, ad an. 937.

found, was chosen to receive the entry of his donations to the see. This entry may still be seen in our MS. in a vacant space on the reverse of folio 16. In later times, the possession of this relic of our Apostle was regarded as one of the title-deeds to the Primatial See; and the great St. Bernard, when commemorating the labours of St. Malachy in reforming the disciplinary abuses which had crept in during the turmoil of the Danish invasions, writes: "The text of the Gospels, which belonged to the blessed Patrick, and the pastoral staff covered over with gold and adorned with the most precious gems, were generally known and in great repute among the natives, and were held in such reverence by all, that the silly and ignorant multitude acknowledged him as bishop in whose possession they were preserved" (*In Vit. Malach.*, chap. 5). Full details regarding the subsequent history of the MS. will be found in a paper entitled, "Memoir of the Book of Armagh", by W. Reeves, D.D., published in 1861. As Dr. Reeves is now engaged in publishing a fac-simile of the whole volume, we may hope that its text will soon be accessible to the public.

The volume, besides the New Testament, contains some memoirs of our apostle written by Tirechan and Maccuthenus, "the confession of St. Patrick", and the "Life of St. Martin of Tours". The New Testament portion of the MS. begins with St. Jerome's Preface: the Four Gospels follow in their usual order; next come the fourteen Epistles of St. Paul, and with them is inserted the apocryphal Epistle to the Laodiceans. The Epistle of St. James, with the two Epistles of St. Peter, the three Epistles of St. John, and the Epistle of St. Jude, hold the next place. The Apocalypse follows after the Catholic Epistles. This, however, does not close the New Testament, for the Apocalypse is followed by the Acts of the Apostles, an arrangement wholly peculiar to this MS.

The Gospel of St. Matthew begins with:

"LIBER GENERATIONIS JESU XTI, FILII DAVID, FILII ABRAAM, ABRAAM AUTEM GENUIT ISAAC, ISAAC AUTEM GENUIT JACOB, JACOB AUTEM JUDAM ET FRATRES EJUS".

At the end of the genealogies the heading *κατα Ματθαιου* (*sic*) is written in Greek characters, and then follows, with an elaborately ornamented capital letter:

"XTI AUTEM GENERATIO SIC ERAT CUM ESSET DISPONSATA MATER EJUS MARIA JOSEPH ANTEQUAM CONVENIRENT INVENTA EST IN UTERO HABENS DE SPIRITU SANCTO".

In the sixth chapter of St. Matthew, the Latin text of the Lord's Prayer is written in Greek letters. One of the peculiar petitions of this prayer, *ne patiaris nos induci in tentationem*, is



met with in some early Fathers, and will be found repeated in some other very ancient MSS. of our Church. This passage is also interesting, as affording a clue to the pronunciation of Latin in this country at least eleven hundred years ago:

Πατηρ νοστερ κυι ες ιν καελις σαντιφικητυρ νωμεν τυυμ  
αδνενιατ ρεγνυμ τυυμ φιατ νολυντας τυα σικυτ ιν καελω ετ ιν  
τερρα πανεμ νοστρυμ κοτιδιανυμ δα νωβις ηοδιε (sic) ετ διμιττε  
νωβις δεβιτα ηοστρα σικυτ ετ νως διμισσιμυς δεβιτωριβυς νοστρις  
ετ νη πατιαρις νως ινδυκι ιν τεμπτατιωνεμ σεδ λιβερα νος α  
μαλω.

In the 27th chapter of St. Matthew, after the 49th verse, comes the apocryphal passage, interpolated from the Gospel of St. John: *Alius autem accepta lancea pupungit latus ejus et exiit aqua et sanguis*. Then follows the account of our Saviour's death, as in our 50th verse: *Jesus autem iterum clamans voce magna emisit spiritum*. It is remarkable that this curious interpolation, which was adopted as genuine by some ecclesiastical writers till condemned by Pope Clement the Fifth in the Council of Vienna, in 1311, is found in the great majority of the Irish Gospels.

At the end of St. Matthew's Gospel is added, in Latin, the following beautiful prayer: "O God, whose mercy is infinite, and whose holiness passeth speech, with humble voice have I boldness to implore that, like as thou didst call Matthew to be a chosen apostle from being a receiver of custom, so of thy compassion thou wilt vouchsafe to direct my steps during this life into the perfect way, and place me in the angelic choir of the heavenly Jerusalem, that, on the everlasting throne of endless joy, I may be deemed worthy to join with the harmonious praises of archangels in ascribing honour to Thee; through thine only begotten Son, who liveth with Thee in the unity of the Holy Ghost throughout all ages. Amen".

The apostle St. John was held in particular veneration by our fathers in the first ages of the Irish Church, and he was generally known by the endearing epithet of "*St. John of the bosom*", on account of the special privilege he enjoyed of reclining on the bosom of his Divine Master at the Last Supper. It was probably as a tribute of honour that in the Book of Armagh his Gospel has finer vellum allotted to it, and the writing in its delicate tracery surpasses that of all the other parts of the volume, exquisite as their execution is.

In the first Epistle of St. John, fifth chapter, our seventh and eighth verses are blended into one as follows:—

“QUONIAM TRES SUNT QUI TESTIMONIUM DANT IN CÆLO SPIRITUS ET AQUA ET SANGUIS ET TRES UNUM SUNT”.<sup>27</sup>

The whole volume concludes with the following beautiful prayer written in the original hand:—

“Te Domine Sancte, Pater omnipotens, ante saecula sine initio, per unigenitum Filium tuum nostræ salutis auctorem ac Spiritum Sanctum Paracletum ac per universum Hierusalem clerum cœlestis.

“Per præcipuos Patres nostros.

“Per Apostolos.

“Præcipue per sanctam Mariam genitricem virginem Filii tui ac Salvatoris nostri Jesu Christi, nati, processi, passi, crucifixi, sepulti, ad infernos descendentes, protoplastum nostrum in humeris deferentis, in pascha resurgentis, apostolis ostendentis, ad coelos ascendentes, in novissimis diebus ad iudicium pervenientis, fideliter rogare præsumo.

“Ut me vilissimum servulum tuum in temporali hac vita prospero cursu auxiliari digneris et per misericordiam tuam infinitam bonum finem in voluntate tua inveniam atque sapientiæ meae minimæ præmia in cælesti gaudio invenire merear per omnia saecula saeculorum. Amen”.

“Thee, O Holy Lord, Omnipotent Father, Eternal, without a beginning, I faithfully presume to pray through Thine only-begotten Son, the Author of our salvation, and the Holy Ghost, the Paraclete, and through all the choirs of the heavenly Jerusalem:

“Through our chief Fathers:

“Through the Apostles:

“Especially through Holy Mary, the Virgin-Mother of Thy Son our Saviour Jesus Christ, born, tried, sentenced to death, crucified, buried, descending into hell, receiving on His shoulders our first parent, arising from the dead on Easter-day, manifesting Himself to the apostles, ascending into heaven, coming to judgment on the last day.

“Deign to grant to me, Thy most worthless servant, a prosperous career in this temporal life, that through Thy infinite mercy I may attain a happy end in Thy good will, and may receive in heavenly bliss the reward of my lowly wisdom, throughout all ages. Amen”.

7. *St. Patrick's Gospels.* Perhaps, however, the most precious

<sup>27</sup> Dr. Reeves, in his *Memoir of the Book of Armagh*, page 3, writes: “In the first Epistle of St. John the famous passage concerning the witnesses, which in our Testaments is the seventh verse of the fifth chapter, is in this MS. entirely omitted . . . . What is our eighth verse succeeds immediately to the sixth, and commences, *for there are three which bear witness in earth, etc.*” This is incorrect. The true reading is, *for there are three who bear witness in heaven.*

Biblical MS. that has been preserved from the early ages of our Church, is the DOMNACH-AIRGID, or "Gospels of St. Patrick". The name *Domnach-Airgid*, i.e., "Silvery Shrine", was given to it on account of the elaborately worked and richly ornamented shrine of silver in which it was encased. Petrie, in *Transactions of R. I. A.*, vol. xviii., gives a lengthened description of this shrine, illustrated with engravings as well as *fac-similes* of the first two folios of the text, the only ones which had been then detached from the precious volume. He justly concludes that it is one of the most remarkable specimens extant of mediæval workmanship.<sup>28</sup> The outer and most modern cover bears inscribed on it the name of the abbot of Clones, "John O'Karbri, Comharb (i.e. successor) of St. Tighernach", whose demise is marked in the *Annals of the Four Masters* at the year 1353. The abbey of Clones, founded by St. Tighernach, and dating back to the sixth century, was situated in the diocese of Clogher, and was for a long time the place of residence of the bishops of that see, and it was probably on this account that the *Domnach-Airgid* was preserved there from the earliest times.

The very ancient life of St. Patrick known as the *Vita Tripartita*, tells us that it was to St. Maccarthen, first successor of St. Patrick in the see of Clogher, that our apostle entrusted this spiritual treasure, and thus explains the reason why the privilege of guarding it was entrusted to the see of Clogher: "The saint left Bishop Mac Carthenn at Clogher, and bestowed on him the *Domnach-Airgid*, which had been given to St. Patrick from heaven when he was on the sea coming to Erin".<sup>29</sup> I may add that one compartment of the old *relievo* which still adorns the case, represents this historic fact, our apostle being seated and handing the *Domnach-Airgid* to St. Maccarthen.

Our most expert antiquarians, judging from the intrinsic features of this MS., have concluded that it may be justly referred to the fifth or sixth century, and thus their opinion fully coincides with the historical data. The very name *Domnach*, which is applied to it, would be of itself, according to Dr. Petrie, a sufficient proof that it was consigned to the Irish Church by our apostle, there being no instance in Irish history of that name being even once applied to any place or shrine except when hallowed by connection with the memory of St. Patrick.

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<sup>28</sup> See the principal passages from Petrie's paper, together with a *fac-simile* of the first page of the second folio, in O'Curry's *Lectures*, i. 321, seqq. It was one of the first archæological essays of Dr. Petrie, and the anti-Catholic tone that pervades it almost entirely disappears from the later productions of this great promoter of antiquarian studies in this kingdom.

<sup>29</sup> O'Curry's *Lectures*, i. 325



Eugene O'Curry, having quoted the conclusions of Petrie, which we have endeavoured to compendiate, adds: "In these conclusions of Dr. Petrie I entirely concur, and I believe that no reasonable doubt can exist that the *Domhnach-Airgid* was actually sanctified by the hand of our great apostle" (*Lectures*, i. 327).

This national monument is now preserved in the R. I. Academy. Owing to age and damp, the membranes of the MS. have become so tenaciously incorporated that they seem to form one mass. However, the few sheets that have been detached suffice to show that it is a Latin MS. of the Gospels, written in uncial letters and representing an Anti-Hieronymian text.

The following verses, which I have copied from the detached membranes, will serve to give some idea of this important text:—

"LI . . . . . TIONIS JESU . . . FILII DAVID FILII ABRAHAM ABRACHAM<sup>30</sup> . . . GENUIT ISSAC ISSAC AUTEM GENUIT JACOB JACOB AUTEM GENUIT JUDAM ET FRATRES EJUS. JUDAS AUTEM GENUIT FRATRES FARIS ET ZARAM . . . . .

ABIAS AUTEM GENUIT ASSA ASSA AUTEM GENUIT JOSAPHAT JOSAPHAT AUTEM GENUIT JORAM JORAM AUTEM GENUIT OZIAM OZIAS AUTEM GENUIT JOTHAM JOTHA AUTEM GENUIT ACHAZ ACHAZ AUTEM GENUIT EZECHIAM EZECHIAS AUTEM GENUIT MANASSEN MANASSES AUTEM GENUIT AMON AMON AUTEM GENUIT JOSIAM, JOSIAS AUTEM . . . . .

OMNES ERGO GENERATIONES . . . AB ABRACHAM USQUE AD DAVID GENERATIONES XIII ET A DAVID USQUE AD TRANSMIGRATIONEM BABILONIS GENERATIONES XIII ET A TRANSMIGRATIONE BABILONIS USQUE AD CRISTUM GENERATIONES XIII . . . . .

ANGELUS DOMINI ET ACCEPIT CONJUGEM SUAM ET NON COGNOSCEBAT EAM DONEC PEPERIT FILIUM SUUM PRIMOGENITUM ET VOCAVIT NOMEN EJUS JESUM. CUM ERGO NATUS ESSET JESUS IN BETHLEHEM IN DIEBUS HERODIS REGIS ECCE MAGI AB ORIENTE VENERUNT JERUSOLIMA DICENTES UBI EST QUI NATUS EST REX JUDEORUM VIDIMUS ENIM . . . . .

TUNC HERODIS VIDENS QUONIAM ILLUSSUS ESSET A MAGIS HIRATUS EST VALDE ET MITTENS<sup>31</sup> . . . . . OMNES PUEROS A BIMATU ET INFRA . . . . .

AUDIENS AUTEM QUOD ARCHIALAUS REGNARET JUDE PRO HERODE PATRE SUO JOSEPH TIMUIT ILLO IRAE ET . . . . .

<sup>30</sup> There is a space vacant after *Abracham*, but Dr. Todd was of opinion that it retained no traces of any letters.

<sup>31</sup> The vacant space would leave room for the words *Bethlehem occidit*.

LOCUSTA ET MEL SILVESTRE. TUNC EXIBANT AD EUM JERUSOLIMA ET OMNES REGIO CIRCA JORDANEM . . . .

8. No name, after those of our great Patrons St. Patrick and St. Brigid, is more honoured in the traditions of Ireland than that of St. Columba. He devoted himself with special ardour to the study of the Sacred Scriptures, and already mention has been made of the precious copy of the Psalms with which he enriched the Irish Church. His biographer, O'Donnell, informs us that "he left behind him three hundred volumes of the Gospels or other sacred books, written with his own hand, many of which, in gold or silver covers, adorned with gems, like the most precious relics, are preserved by posterity, and held in the highest veneration to the present day; but the rest wars and the injury of time have destroyed".<sup>32</sup> In the lives of the early saints we often meet with reference to these Gospels of St. Columba. Thus in the life of St. Berach, we read that when Columba visited *Cluain Coirpre*, which was the monastery of that saint, "he left there many good gifts. He left heaven to its priests and abbots, provided they prayed three times at the cross of Columbkille for his helpful assistance: he left to them that every monk who goes thither to make his pilgrimage shall receive equally with himself in heaven: he left the Gospel which he wrote with his own hand in token of his friendship with Berach, and many other blessings".<sup>33</sup>

The most remarkable of these Gospels is known as the *Book of Kells*, which, to use the words of Dr. Todd, "is probably the most splendid manuscript of its class and age now extant in Europe". "Ireland", writes Westwood, "may justly be proud of the *Book of Kells*. This copy of the Gospels, traditionally asserted to have belonged to St. Columba, is unquestionably the most elaborately executed MS. of early art now in existence, far excelling, in the gigantic size of the letters in the frontispieces of the Gospels, the excessive minuteness of the ornamental details, the number of its decorations, the fineness of the writing, and the endless variety of initial capital letters with which every page is ornamented, the famous Gospels of Lindisfarne in the Cottonian library. But this MS. is still more valuable on account of the various pictorial representations of different scenes in the life of our Saviour, delineated in a style totally unlike that of every other school, and of which I believe the only other specimens are to be found in the Psalter of St. John's College, Cambridge, and at St. Gall; the latter, however,

<sup>32</sup> Colgan, *Trias Th.*, page 438. O'Donnell wrote this life of St. Columba in the year 1522.

<sup>33</sup> O Curry MSS., Catholic University. Life of St. Berach, pag. 25.

being far inferior in execution to those in the *Book of Kells*" (*Palæogr. Sac., The Book of Kells*, page 2).

It received its present name from being preserved in the ancient monastery of Kells, founded by St. Columba. The town of Kells, anciently called Kenannas, was at one time of considerable importance, and the residence of the kings of Ireland, till one of these, Diarmait Mac Fergusa Cearbhail (*regn.* 544-565), made a gift of it to St. Columba. In the year 804 the religious community of Hy sought an asylum here, when driven from their monastery by the incursions of the Danes; and in 807, perhaps in consequence of this increase in the community of Kells, our Annalists record the erection of a new monastery there: "*Nova civitas Columbe-Cille in Kenannas*". From that time the bishop of the district seems to have resided there. Usher, in his day, speaks of our MS. as being "held sacred by the inhabitants of Meath, in the town called Kenlis, *i.e.*, Kells".<sup>34</sup> More than six hundred years before Usher's time it was honoured there with equal reverence, as we learn from the following entry of the Annals of Ulster:

"A.D., 1006. The large Gospel of Columbkille was sacrilegiously stolen in the night out of the western *erdom* (*i.e.*, sacristy or treasury) of the great church of Kells. This was the chief relic of the western world on account of its singular cover: it was found after twenty nights and two months with its gold stolen off, and a sod over it".<sup>35</sup>

This important entry proves that as far back as the beginning of the eleventh century the *Book of Kells* was known as "the large Gospel of St. Columba"; that it was even then considered so ancient and so venerable that it was encased in a precious shrine adorned with gold; and that it was so precious as to be deemed "the chief Relic of the West".

The *Book of Kells* is now preserved in the Library of Trinity College, Dublin, and although it no longer retains its rich case, and some leaves of the precious MS. have been lost, yet it is still the gem of that Library, and its beautiful illuminated pages are some of the noblest specimens of ancient Irish art that have come down to our times. "That the book we now possess in the Library of Trinity College", writes Dr. Todd, "is the great Gospel of St. Columbkille, to which our ancient annals refer, is certain. It is proved by many satisfactory evidences, external and internal. The MS. bears all the characters known by those who have made manuscripts their study, to belong to the latter

<sup>34</sup> *Works*, vol. vi. p. 232.

<sup>35</sup> *Annals of Ulster*, and also *Annals of Four Masters*, ad an. 1006.



half of the sixth century: it is *a large*, an unusually large copy of the Gospels, the letters being throughout about three-eighths of an inch in height, a size very uncommon at that time, when it was customary to write in a very small hand: it belonged to the church of Kells, as is evident from the curious charters relating to the clergy of Kells which it contains, and it continued among the treasures of that church down to the time of Archbishop Usher, that is to say, down to the seventeenth century, as we learn from the archbishop's own testimony. We must therefore regard it as a valuable monument of the piety and zeal of the Irish Church of the sixth century".<sup>36</sup>

The most remarkable feature in the venerable manuscript is its singularly ornamental initial letters and its richly illuminated pages.<sup>37</sup> I must again use Dr. Todd's words: "I have for many years", he writes, "had the custody of the *Book of Kells*, as assistant Librarian to the University; I have examined it minutely and attentively over and over again, and I can say of it, as old Giraldus said of the *Book of Kildare*: 'Hæc equidem quanto frequentius et diligentius intueor, semper quasi novis obstupeo, semperque, magis et magis admiranda conspicio'. To describe its marvellous illuminations, and those wonderfully twisted, interlaced ornaments, which Giraldus so greatly admired in the *Book of Kildare*, and which are to be found in abundance in every page of the *Book of Kells*, would be wholly impossible; no description could give any adequate idea of their beauty and marvellous variety".<sup>38</sup> The first illuminated page presents to us a highly ornamented picture of the Blessed Virgin and the Divine Infant. Mr. Westwood, in his *Palæographia Sacra*, has given a fac-simile of this beautiful work of art, and it is thus described by Dr. Todd: "The page is wholly occupied with a beautiful illumination containing a full-length sitting figure of the Virgin and Child, surrounded by a frame-work of the most elaborate workmanship, adorned with an infinite variety of the interlaced tracery work which is characteristic of our ancient Irish Biblical MSS., and which in the *Book of Kells* is executed with a skill and exquisite minuteness which indicates a high state of the art, and in truth baffles description". He subsequently gives a more minute account of the picture itself:

<sup>36</sup> Todd on *The Book of Kells*, in *Irish Ecclesiastical Journal*, vol. iv. p. 38.

<sup>37</sup> One of these has been admirably copied by Miss Stokes, and published with "Descriptive Remarks" of Dr. Todd, in the *Vetusta Monumenta*, London, 1869, vol. vi. Stuart has justly remarked that "the mantle of our early illuminators has fallen upon Miss Stokes, who has reproduced, among others, one of the marvellous pages of the *Book of Kells* with wonderful fidelity" (*Sculptured Stones of Scotland*, etc., vol. 2, p. lxxxii.).

<sup>38</sup> *Ibid.*, page 39.

"This singular figure of the Blessed Virgin and Child", he says, "is executed in the rudest style of art, as far as perspective is concerned, although in other respects consummate skill is displayed in the complicated interlaced tracery of the ornaments and border with which it is surrounded. The head of the Virgin is encompassed by a singular glory or *aureola*, consisting of two consecutive circles enclosing bead-work, and within the smaller circle three crosses, one at each ear and one at the top of the head. Two angels are represented at each of the upper corners of the picture, in attendance on the Virgin, holding in their hands sceptres with a small cross surrounded by a circle at the top of each. There are angels also below in the lower angles, one holding in his hand a sceptre or staff, on the top of which is a circle containing within it what seems a representation of the sun; the other has in his hand an instrument consisting of a stem separating itself into two convoluted branches, each terminating in a large leaf resembling a shamrock".<sup>39</sup> To this description of our Irish archaeologist, I will add the words of the English antiquarian. It is thus that Westwood writes: "The verso of folio 7 contains the drawing of the Virgin and Child, which is inclosed within a highly elaborate border composed of intertwined lacertine animals with dogs' heads. This singular composition is interesting from the proof it affords of the veneration of the Virgin Mary in the early Irish Church: the large size in which she is represented, as well as the glory around her head, which singularly bears three crosses, evidently indicating the high respect with which the Mother of Christ was regarded".<sup>40</sup> In a later work the same illustrious author devotes four plates to illustrate this MS., and writes: "The very numerous illustrations of the *Book of Kells* render it a complete storehouse of artistic interest. Foremost, and quite unique of their kind, are three pictures representing scenes of the life of the Saviour, namely, first, the representation of the Virgin and Child; second, the temptation of Jesus Christ; and third, the seizure of Christ by the Jews. . . . The Virgin Mother is here represented seated in a low-bottomed chair of elegant design, represented in profile. The Virgin is drawn of a large size, as was often done by way of showing veneration in drawing the Sacred Persons by early artists. As usual with figures of females also, at this early period, the head is covered with drapery and surrounded by a purple circular nimbus, bearing three pale yellow Maltese crosses, and several groups of three

<sup>39</sup> *Ibid.*, page 55 and 78.

<sup>40</sup> Westwood, *Palæographia Sacra, Book of Kells*, page 3.

white dots arranged in a triangle; the nimbus being edged with a narrow band of pearls on a sienna ground. . . . Besides these illustrations, the text itself is far more extensively decorated than in any other now existing copy of the Gospels".<sup>41</sup> Mr. Westwood also adds that in this plate of the Blessed Virgin, the heads of six persons are grouped together into a small square space taken out of the right hand border: "It is difficult", he says, "to comprehend the object of this group of heads". We may be allowed to conjecture that they are intended to convey some idea of the angelic choir at Bethlehem, or of the adoration of the Magi.

Admiration for this volume is not confined to our native writers and those of the sister isle. Foreigners have freely joined in the same chorus of praise, and yielded the palm in ornamentation to the Irish MS. It is thus that Dr. Waagen, the conservator of the Royal Museum of Berlin, writes of it: "Its ornamental pages, borders, and initial letters exhibit such a rich variety of beautiful and peculiar designs, so admirable a taste in the arrangement of the colours, and such an uncommon perfection of finish, that one feels absolutely struck with amazement".<sup>42</sup>

The *Book of Kells* at present consists of 339 leaves of very thick but finely-glazed vellum, each page measuring, even after the cruel work of the modern binder's knife, thirteen inches by nine and a half. Some pages of the MS. are unfortunately wanting. The page with which it now opens contains the conclusion of the explanation of Hebrew proper names, which is attributed to St. Jerome. On the reverse begins a concordance of the Gospels, or the Eusebian Tables, which occupy several pages. A vacant space at the end of these Tables was appropriated, in later times, to various charters, in the Irish language, connected with the church of Kells; and the vacant spaces which occur elsewhere throughout the volume are utilised in the same manner. These deeds or charters are invaluable as monuments of the Celtic language at the various periods to which they refer, and they also throw much light on the civil and religious usages of our people.<sup>43</sup>

At fol. 8 begin the summaries of the Gospel of St. Matthew, which correspond to the heads of chapters in our Bibles. The

<sup>41</sup> *Fac-similes*, etc., page 27 seqq.

<sup>42</sup> Ap. Westwood, loc. cit. Lhuys long ago described the volume as being "miri operis et antiquitatis qui liber Colum Kill vulgo dicebatur". *Archæolog.* Oxford, 1707, page 436.

<sup>43</sup> They have been published in the original text, with translation, by O'Donovan, in *Miscellany of Irish Archaeol. Soc.* for 1846, p. 127.



opening sentence is: "Nativitas Xti in Bethlehem Judeae Magi munera offerunt et infantes interficiuntur Regressio Jesu ex Egypto in Nazareth". The summaries are followed by the "Argument" of the Gospel: "Matthaeus ex Judaeis sicut primus ponitur ordine", etc., as may be seen in many editions of the *Vulgate*. The same order is observed in regard to St. Mark, but it is reversed for the other Gospels. First comes the "Argument" of the Gospel of St. Luke, then the "Argument" of St. John's Gospel, and next in order we find the "Summaries" of these two Gospels.

The text of the Gospels begins at folio 29, and a whole page is occupied by the two words "*Liber Generationis*", which are beautifully ornamented in the elaborate style peculiar to this manuscript. Throughout the volume the *Vulgate* text is in the main adopted; but there are many peculiar readings and some passages introduced from ante-Hieronymian versions.

The following passages will suffice as specimens of this remarkable MS.:

"LIBER GENERATIONIS JESU XTI FILII DAVID FILII ABRACHAM. ABRACHAM AUTEM GENUIT ISAC ISAC AUTEM GENUIT JACOB JACOB AUTEM GENUIT JUDAM ET FRATRES EJUS JUDAS AUTEM GENUIT FHARES ET ZARAD DE THAMAR FHARES AUTEM . . . . JOSEPH VIRUM MARIAE DE QUA NATUS EST JESUS QUI VOCATUR XTUS (*Matt. cap. i.*).

"VIDENS AUTEM JESUS TURBAS ASCENDIT IN MONTEM ET CUM SEDISSET ACCESSERUNT AD EUM DISCIPULI EJUS ET APERIENS OS SUUM DOCEBAT EOS Dicens BEATI PAUPERES SPIRITU QUONIAM IPSORUM EST REGNUM CAELORUM. BEATI MITES QUONIAM IPSI POSSIDEBUNT TERRAM. BEATI QUI LUGENT NUNC QUONIAM IPSI CONSULABUNTUR. BEATI QUI ESSURIUNT ET SITIUNT JUSTITIAE QUONIAM IPSI SATURABUNTUR (*Ibid.*, cap. v.).

"ET FACTUM EST CUMSUMMASSET JESUS SERMONES HOS TRANSTULIT SE A GALILEA ET VENIT IN FINES JUDEAE TRAN JORDANEM ET SAECUTAE SUNT EUM TURBAE MULTAE ET CURABIT<sup>44</sup> EOS IBI (*Ibid.*, cap. xix.).

"ALIUS AUTEM ACCEPTA LANCEA PUPUNGIT LATUS EJUS ET EXIIT AQUA ET SANGIS (*Ibid.*, cap. xxxvii. 48).<sup>45</sup>

"JOSEPH QUI FUIT HELI, QUI FUIT MATHA, QUI FUIT LEVI, QUI FUIT MELCHI, QUI FUIT JAMNE, QUI FUIT JOSEPH, QUI FUIT MATHATHIAE, QUI FUIT AMOS, QUI FUIT NAUUM, QUI FUIT ESLI, QUI FUIT NAGGE, QUI FUIT MAATH, etc. (*Luc. cap. iii.*).

<sup>44</sup> *Curabit* for *curavit*, according to the usual Celtic substitution of *b* for *v*.

<sup>45</sup> This interpolated passage is found in most of the Irish Gospels.

"IN PRINCIPIO ERAT VERBUM ET VERBUM ERAT APUD DEUM ET DEUS ERAT VERBUM HOC ERAT IN PRINCIPIO APUD DEUM OMNIA PER IPSUM FACTA SUNT ET SINE IPSO FACTUM EST NIHIL QUOD FACTUM EST IN IPSO VITA ERAT ET VITA ERAT LUX HOMINUM" (*Joan.*, cap. i.).

"QUOD NATUM EST EX CARNE CARO EST QUIA DE CARNE NATUM EST ET QUOD NATUM EST EX SPIRITU SPIRITUS EST QUIA DEUS SPIRITUS EST ET EX DEO NATUS EST" (*Ibid.*, cap. iii. vv. 5 and 6).

This last passage, which so clearly expresses the divinity of the Holy Ghost, was for a long time supposed to exist only in one MS., viz., the Silver Gospels of Vercelli. Father Simon went so far as to assert that there was no Latin MS. in existence in which it was to be found.<sup>46</sup> The passage is referred to by St. Ambrose in his work *De Spiritu Sancto*, and it is supposed to have been cancelled by the Arians from the Sacred Text. Westwood found it also in the copy of the Latin Gospels preserved at Treves, which is written in part in the Irish character, and in the remainder in Merovingian uncials. The passage there runs as follows: "*Quod natum est de carne caro est, et quod natum est de spiritu spiritus est quia Deus spiritus est, ex Deo natus est. Noli mirari quia dixi tibi oportet vos nasci de novo*". The words here printed in italics are written in the MS. on erased lines.<sup>47</sup>

How the *Book of Kells* passed from the possession of the monastery of Kells into the hands of Usher, cannot now be fully explained. Dr. Todd merely states that Usher took it in charge, fearing lest it might be lost amidst the turbulent scenes of 1641. After the death of Usher it shared the perils of his library; but at last "*ex dono Caroli Secundi*", came with most of his books to its present guardianship in Trinity College.<sup>48</sup>

9. The copy of the Gospels written by St. Columbkille, and known as the *Book of Durrow*, is also preserved in Trinity College, Dublin (A. 4, 5), and consists of 248 leaves of vellum, nine and a half inches in length and six inches in breadth. Each

<sup>46</sup> Simon, *Histoire Critique du Texte*, p. 355; also Blanchini, *Vindicia*. Rome, 1740, p. 373.

<sup>47</sup> *Fac-similes*, 11, etc., p. 72, seqq.

<sup>48</sup> O'Connor, in *Rer. Hib. Scriptores*, vol. i., was betrayed into a serious error regarding this MS. He had asked to see the *Book of Kells*, and a beautiful MS. richly ornamented was shown to him, which he minutely describes as the *Book of Kells*. His guide, however, either through ignorance or malice, had shown him a different MS., viz., the *Book of Durrow*, and thus the description of the learned antiquarian is found not to correspond with the text which he proposed to describe. This, however, was not his fault. His guide on this occasion was no other than Dr. Elrington, Provost of Trinity College, Dublin (See O'Connor, *loc. cit.*, p. cccxxviii.).

page has twenty-five lines, and consists of a single column. At the commencement of the volume, and immediately preceding each Gospel, there are richly illuminated pages entirely covered with tessellated interlaced ornaments.<sup>49</sup> The description of one of these pages from the pen of the learned Dr. O'Connor will suffice to give an accurate idea of the whole: "Vetera", he says, "sese offerunt ornamenta, lineis eleganter intertextis, rubris, flavis, purpureis, et violaceis coloribus depicta, quae marginem exhibent quadrilaterum, in cujus areae medio Crux iisdem coloribus et lineis pulchre delineata conspicitur, et in quatuor spatiis, quae a Crucis crure et brachiis formam quadratam sibi indicant quatuor depictae sunt figurae quae quatuor Evangelistas repraesentant, idque stylo elegantiori quam in codicibus Ceaddae et Cuthberti".<sup>50</sup>

The text of the Gospels contained in this volume is that of the Latin Vulgate.<sup>51</sup> It begins with the letter of St. Jerome to Pope Damasus, which is followed by an explanation of the Hebrew names, the Eusebian Canons, and the *Breves Causae*, or Synoptical Tables of the Four Gospels. These occupy the first twelve leaves of the MS. As a specimen of the Gospel text I take from the fac-simile of Westwood the following verses of the Gospel of St. Mark:

"INICIPIT EVANGELIUM SECUNDUM MARCUM.

"INITIUM EVANGELII JESU XTI FILII DEI SICUT SCRIPTUM EST IN ESEIA PROFETA. ECCE MITTO ANGELUM MEUM ANTE FACIEM TUAM QUI PRAEPARABIT VIAM TUAM.

"VOX CLAMANTIS IN DESERTO PARATE VIAM DOMINI RECTAS FACITE SEMITAS EJUS.

"FUIT JOHANNIS IN DESERTO BAPTIZANS ET PRAEDICANS BAPTISMUM PAENITENTIAE IN REMISSIONEM PECCATORUM ET EGREDIEBATUR AD ILLUM OMNES REGE<sup>52</sup> JUDEAE REGIO ET HYERUSOLIMITAE UNIVERSI ET BAPTIZABANTUR AB ILLO IN IORDANE FLUMINE CONFITENTES PECCATA SUA.

"ET ERAT JOHANNIS VESTITUS PYLIS CAMELLI".

A fac-simile of the following passage is given by O'Connor, *Rer. Hib. Script.*, vol. i., p. clxxxx:

"EVANGELIUM SECUNDUM LUCAM.

"QUONIAM QUIDEM MULTI CONATI SUNT ORDINARE NARRA-

<sup>49</sup> Westwood, *Fac-similes*, p. 22; and O'Connor, *Rerum Hibernic. Script.*, vol. i. ccxxxvii. seqq.

<sup>50</sup> *Rerum Hib. Script.*, ccxxxix. Westwood, in *Fac-similes*, etc., devotes four plates to this MS.

<sup>51</sup> Westwood, *Fac-similes*, p. 22; and O'Connor, *Rerum Hibernic. Script.*, vol. i. ccxxx., seqq.

<sup>52</sup> This word is marked in the text as to be erased.



TIONEM QUAE IN NOBIS COMPLETAE SUNT RERUM SICUT TRADIDERUNT NOBIS QUI AB INITIO IPSI VIDERUNT ET MINISTRI FUERUNT SERMONIS VISUM EST ET MIHI ADSAECUTO A PRINCIPIO OMNIBUS DILIGENTER EX ORDINE TIBI SCRIBERE OPTIME THEOFILE UT COGNOSCAS EORUM VERBORUM DE QUIBUS ERUDITUS ES VERITATEM.

“FUIT IN DIEBUS HERODIS REGIS JUDAE SACERDOS QUIDAM NOMINE ZACHARIAS DE VICE ABIA ET Uxor illi de filiabus AARON”.

As regards the age of the *Durrow Gospels*, there seems to be no doubt but that they must be referred to the sixth century. The words of Petrie are particularly explicit: “Whatever doubt”, he says, “may be felt as to the exact date of the Book of Kells, no doubt whatever can be entertained as to the age of the Book of Durrow”.<sup>53</sup> Usher in his day pronounced it a most ancient relic: “Durrow” he thus writes, “had a monastery dedicated to St. Columbkille, and among its *κειμηλια* was preserved a most ancient manuscript of the Gospels”.<sup>54</sup> The volume was formerly encased in a rich shrine, but of this no fragments now remain. Its loss, however, is the less to be deplored as the historical inscription which it bore has been recorded by O’Flaherty, writing on the 19th June, 1677. This learned antiquarian thus attests that important fact: “An Irish inscription engraved on the silver cross which adorns the cover of this book, gives us on the transverse part the name of the artist, and on the longitudinal part, in three lines, runs as follows: *A prayer and the blessing of St. Columbkille for Flann, the son of Malachy, king of Ireland, by whom this cover was made*”.<sup>55</sup> Thus Flann, the monarch of Ireland, who, according to the Annals of Ulster and the *Chronicon Scotorum*, died in the year 916, adorned this MS. with a precious shrine, no doubt through reverence for St. Columba, and in reward for the religious spirit which he thus displayed, invokes for himself “a prayer and the blessing” of the saint. What, however, removes all doubt as to the venerable antiquity of this MS., is the remarkable colophon written by St. Columba himself: “*Rogo beatitudinem tuam sancte Presbyter Patrici ut quicumque hunc libellum manu tenuerit meminerit Columbae scriptoris qui hoc scripsi ipsemet evangelium per xii dierum spatium gratia Domini nostri*”. And underneath, “in a contemporary hand”, as Petrie states; “in a more angular but not later hand”, as Reeves writes,<sup>56</sup> is added, “*ora pro me frater mi Dominus tecum sit*”.

<sup>53</sup> Westwood, p. 23.

<sup>55</sup> Reeves's *Adamnan*, p. 327.

<sup>54</sup> Usher's *Works*, vi. 232.

<sup>56</sup> *Adamnan*, p. 242.

The monastery and church of Durrow, in the Queen's County, were founded by St. Columba about the middle of the sixth century. A sculptured cross, still called the cross of St. Columbkill, which stands in the churchyard, and the *well of St. Columbkill*, which is not far distant, are now the only monuments which recall his memory. The MS. of which we treat was preserved there with religious care down to the era of the so-called Reformation, when it was taken from the monastery by Dr. Henry Jones, the Protestant Bishop of Meath under Elizabeth, for Durrow was situated within the limits of his see, and he being at the same time vice-chancellor of Trinity College, presented it in his own name to the library of that institution. It still bears the record inscribed on its first page: "*Liber S. et individuae Trinitatis Collegii juxta Dublinum ex dono Rev. in Xto Patris Episcopi Medensis*". Through all the wars of a thousand years this precious memorial of St. Columba was guarded with loving care by the monks of Durrow. How does it happen that its rich shrine has disappeared since it was conveyed to the library of Trinity College?

10. *The Gospels of St. Gildas*. This MS., commonly known as "*The Lichfield Gospels*", or "*Gospels of St. Chad*", from being preserved in the cathedral of St. Chad, at Lichfield, was judged by Lluyd in his days to be more than eleven hundred years old. Its Anglo-Saxon entries, and still more the fragments of the ancient British language which it preserves, render this MS. specially dear to our philologists. It is in folio, measuring twelve inches by nine and a-half, and at present consists of only 110 leaves: the whole of St. John's Gospel is wanting, and the MS. abruptly terminates at Luke iii. 9. The first page of the Gospel of St. Matthew, and several other portions of the MS., are richly illuminated.

All our antiquarians seem to be agreed as to the antiquity of this precious work, and Mr. Haddan, the latest writer on the subject, does no more than repeat their unanimous judgment, when he states that it must be referred at least to the eighth century, and that it possibly may claim an earlier date.<sup>57</sup> Should the lost leaves of the MS. be discovered, they probably may contain some entry to mark the name of the scribe and the age when he lived.

The oldest entry in these Gospels refers to the purchase of the book for the service of God and the church of St. Teilo in Llandaff, and is referred by our antiquarians to the ninth century. This entry may be thus translated: "This is to record that

<sup>57</sup> *Councils, etc., of Great Britain*, Clarendon Press, 1869, page 190.

Gelbi the son of Arihtiud purchased this Gospel from Cingal, and gave for it an excellent horse (equum optimum): and he presented this Gospel on the altar, to God and St. Teilo, for the benefit of his soul". There are also several other entries which show that it was held in high honour in Llandaff, and was regarded as specially venerable and sacred. From Llandaff it passed to Lichfield, though at what time is uncertain. The earliest Lichfield entry refers to the eleventh century; but it is probable that this entry, like some of those in the *Book of Kells*, was copied at a later date. At all events, for not less than five centuries it has been preserved at Lichfield, and is justly regarded as one of the most precious treasures of that see.

Harwood, in his history of Lichfield, refers to a description of this MS. written by Smalbroke, who states that, according to the tradition of the see, those Gospels originally belonged to Llandaff in Wales, and "were written by St. Gildas before the year 720".<sup>58</sup> Now if we turn to the life of St. Gildas, composed by Caradoc of Wales in the twelfth century, we learn that precisely some such MS. had been written by that saint, and that at the time of Caradoc it was preserved with religious veneration in the church of St. Cadoc in the diocese of Llandaff. Having mentioned the journey of St. Gildas from Ireland to Britain, he thus continues: "Cadocus Abbas Nancarbanensis Ecclesiae rogavit eum ut regeret studium scholarium per anni spatium et rogatus rexit utillimum, nulla mercede accepta a scholaribus, praeter orationes cleri et scholarium, ubi ipsemet scripsit opus iv. Evangeliorum, quod adhuc remanet in Ecclesia S. Cadoci, auro et argento undique coopertum. . . . Tenent Wallenses indigenae illud volumen praetiosissimum in conjurationibus suis, nec audent aperire ad videndum, nec confirmant pacem et amicitiam inter inimicos, nisi illud affuerit imprimis appositum".<sup>59</sup>

There can be no doubt that St. Gildas is a representative of the Irish school,<sup>60</sup> and were it certain that the present Gospels were copied by him, they should necessarily be referred back to the sixth century, as the death of St. Gildas is registered in the Annals of Ulster in the year 569. Its intrinsic data point also to the sixth century for its origin. Westwood devotes a special chapter to this MS., and declares that it represents "the rude style of the early Irish School". He subsequently writes: "From the peculiarities of the text no less

<sup>58</sup> Harwood, *History of Lichfield*, page 107.

<sup>59</sup> O'Connor, *Rer. Hib. Scrip.*, i. page cc.

<sup>60</sup> See this point very ably illustrated in O'Connor, *loc. cit.*, cxviii.



than from the style of the writing and illustrations, I infer that this MS. is one of the productions of the ancient schools of Ireland. Hickes, Lhuyd, Astle, and others, have indeed considered it to have been written in England; but these authors were unacquainted with the existence of a school of art in Ireland. Moreover, there seems no reason to doubt the opinion of Lhuyd, that it was in his days eleven hundred (now more than twelve hundred) years old".<sup>61</sup>

The Gospel of St. Matthew thus begins :

"LIBER GENERATIONIS JESU CHRISTI FILII DAVID FILII ABRACHAM ABRACHAM AUTEM GENUIT ISAC ISAC AUTEM GENUIT JACOB JACOB AUTEM GENUIT JUDAM ET FRATRES EJUS JUDAS AUTEM GENUIT PHARES ET ZARAM DE THAMAR. . . . JOSEPH VIRUM MARIAE DE QUA NATUS EST JESUS QUI VOCATUR CHRISTUS".

A *fac-simile* of the following passage from the commencement of St. Luke, is given by O'Connor :

"ET MIHI ADSECUTO A PRINCIPIO OMNIBUS DILIGENTER EX ORDINE TIBI SCRIBERE OBTIME THEOFILE UT COGNOSCAS EORUM VERBORUM DE QUIBUS ERUDITUS ES VERITATEM".<sup>62</sup>

11. *The Book of Inis Meic Nessain*, commonly known as the "Garland of Howth", and also as "Ceathair Leabhair", i.e. *the Four Books*, is a copy of the four Gospels, "written, as it would seem from its penmanship, early in the seventh century".<sup>63</sup> Usher tells us that this MS. was preserved down to his time in the island called *Ireland's Eye*, and anciently known as *Inis Meic Nessain*, i.e. "the island of the sons of Nessan", opposite the mouth of the harbour of Howth, at a distance of less than a mile from the shore. He adds that the natives gave it the name of *Ceathair Leabhair*, or "Quadruple Book", from the Four Gospels which it contains. Usher also tells us that in his time there was "a small clasp or tongue of silver attached to the book, on which was inscribed the name of *St. Talman*".<sup>64</sup> All traces of this clasp have now disappeared.

The name "*Insula filiorum Nessani*" occurs in the letter of Pope Alexander the Third to St. Laurence O'Toole in 1179.<sup>65</sup> The old name of the island in the *Dinnseanchus* was *Inis Erenn*, translated by the Danes, "*Ireland's I*", which, like the similar names Anglesey, Dalkey, Lambay, etc., meant *Ireland's island*, and not, as it was interpreted by the English settlers, *Ireland's Eye*.

<sup>61</sup> *Palaeograph. Sac.*, "The Gosp. of St. Chad", page 2.

<sup>62</sup> *Rer. Hib. Script.*, i. page xcii.

<sup>63</sup> Dr. Todd, *Descriptive Remarks*, etc., 1869, page 13.

<sup>64</sup> *Works*, vol. vi. page 531.

<sup>65</sup> Usher, *Sylloge*, epist. xlviii.

Dr. Allan, Archbishop of Dublin in 1528, makes mention of the present MS., and records the tradition that it belonged to St. Nesson, and that at the time he wrote, it was held in the highest veneration in the island : "Habetur hodie inibi in magno precio et veneratione non modica ita ut vix justus audet jurare super ipsum propter Dei vindictam ostensam hominibus perjuris in illum".<sup>66</sup>

St. Nesson was descended, in the eleventh generation, from Cathair Mor, monarch of Ireland (A.D. 174–177), and had seven sons, all of whom are mentioned in the calendar of saints. Three of them, named Dichull Derg, Munissa, and Neslug, founded a monastery on this island before the close of the seventh century, and gave their name to it.

The MS., as Dr. Todd informs us, "ultimately found its way to the collection of Archbishop Usher, and was at length deposited with his grace's library, in the safe keeping of its present possessors, the Provost and Senior Fellows of Trinity College, Dublin".<sup>67</sup> It is to be regretted that their *safe keeping* did not preserve the silver clasp with which the MS. was ornamented in Usher's time. Two pages of this venerable volume are given in *fac-simile* by Miss Stokes, in the *Vetusta Monumenta* already referred to. I have copied the following passages from the original MS. in T.C.D. (A. 4. 6.) :—

"CUM ERGO NATUS ESSET IHESUS IN BETHLEM JUDAE IN DIEBUS HERODIS REGIS JUDAE ECCE MAGI AB ORIENTE VENERUNT IN HIRUSOLIMAM DICENTES UBI EST QUI NATUS EST REX JUDEORUM. VIDIMUS ENIM STELLAM EJUS IN ORIENTE ET VENIMUS ADORARE EUM. AUDIENS AUTEM HERODIS REX TURBATUS EST ET OMNES HIRUSOLIMA CUM ILLO ET CONGREGANS OMNES PRINCIPES SACERDOTUM ET SCRIBAS POPULI SCISCITABATUR INTERROGABAT AB EIS AB EIS (*sic*) UBI XTUS NASCERETUR. AT ILLI DIXERUNT IN BETHLEM JUDAE SIC ENIM SCRIPTUM EST PER PROFETAM ET TU BETHLEM TERRA JUDA NEQUAQUAM MINIMA ES IN PRINCIPIBUS JUD...EXIET DUX QUI REGAT POPULUM MEUM Isr..."—(*Matth. ii.*).

"QUI FUIT ADAM QUI FUIT DEI JESUS AUTEM PLENUS SPIRITU SANCTO REGRESSUS EST A JORDANE ET AGEBAUR IN SPIRITU IN DESERTUM DIEBUS QUADRAGENTA. ET TEMPTABATUR A ZABULO. ET NIHIL MANDUCAVIT IN ILLIS DIEBUS ET CONSUMMATIS ILLIS ESSURIT. DIXIT AUTEM ILLI DIABULUS SI FILIUS DEI ES DIC LAPIDIBUS ISTIS UT PANES FIANT ET RESPONDIT AD EUM JHESUS SCRIPTUM EST QUONIAM NON IN PANE SOLO VIVET HOMO SED IN OMNI VERBO DEI ET DUXIT ILLUM

<sup>66</sup> *Liber Niger*, fol. lxxx. a.

<sup>67</sup> *Descriptive Remarks*, etc., page 14.

DIABULUS IN MONTEM EXCELSUM ET OSTENDIT ILLI OMNIA REGNA ORBIS TERRAE IN MOMENTO TEMPORIS. ET AIT ILLI TIBI DABO POTESTATEM HANC UNIVERSAM ET GLORIAM ILLORUM QUIA MIHI TRADITA SUNT A PATRE MEO ET CUI VOLUERO DOO ILLA. TU AUTEM SI ADORAVERIS CORAM ME ERUNT TUA OMNIA. ET RESPONDENS JHESUS DIXIT ILLI.....”.

12. *The Gospels of Lindisfarne*. This noble MS., “the glory of the Cottonian Library”, as Westwood styles it, consists of 258 leaves of thick vellum in folio, and contains the Four Gospels, according to the Vulgate, written in double columns, with an interlineary Anglo-Saxon gloss which was added in later times. For this text we are indebted to Eadfrid, a monk of Lindisfarne, to whom Ven. Bede dedicated the prose life of St. Cuthbert, and who was raised to the see of Lindisfarne in the year 698. The MS. is sometimes styled the Gospels of St. Cuthbert, as a note at the end of St. Matthew’s Gospel records that it was written by Eadfrid “in honour of God and Cuthbert”. It was encased in a rich silver-gilt cover, and was held in the highest veneration in the monastery of Lindisfarne. The Durham chronicler relates that when the religious of Lindisfarne were flying from that monastery in consequence of the depredations of the Danes, this precious volume fell from their boat into the sea, but through the merits of St. Cuthbert the tide ebbed so far that they found it again the next day upon the sands about three miles from the shore, without having received any injury from the water.

Mr. Westwood justly claims the text of these Gospels<sup>68</sup> for the Irish School : first, because the MS. retains all the characteristics of the Irish text ; second, the monastery of Lindisfarne was an Irish foundation ; third, St. Cuthbert, in whose honour it was written, was an Irish saint ; and fourth, the writer Eadfrid had studied in the schools of Ireland, as his contemporary and friend, Aldhelm, informs us.<sup>69</sup>

O’Conor in *Rerum Hibernicarum Scriptores*, vol. i., gives a *fac-simile* of a passage from these Gospels, and adds : “Habemus Eadfridum octavum Episcopum Lindisfarnensem, Hibernorum discipulum, qui codicem dictum S. Cuthberti, Vulgatæ editionis propria manu exaravit, annum circiter 688, idque tam

<sup>68</sup> It must be remarked that it is only *the text* of this MS. that is to be attributed to Eadfrid. The note at the end of St. Matthew’s Gospel expressly states that the illuminations were executed by Ethelwald, a contemporary of Eadfrid. The Saxon glosses are now generally referred to the tenth century. Horne has fallen into many errors regarding this MS. See Wright, *Anglo-Sax. Litt.*, page 427.

<sup>69</sup> See Aldhelm’s letter in Usher’s *Sylloge*, No. xiii.



pulchre, ut, incomparabile Calligraphiae Hibernicae specimen, dignissimus sit qui in omne aevum servetur".<sup>70</sup>

The following passages will give some idea of the text of this manuscript :

"ET APERIENS OS SUUM DOCEBAT EOS DICENS BEATI PAUPERES SPIRITU QUONIAM IPSORUM EST REGNUM COELORUM".<sup>71</sup>

"FUIT IN DIEBUS HERODIS REGIS JUDAEAE SACERDOS QUIDAM NOMINE ZACHARIAS DE VICE ABIA ET UXOR ILLI DE FILIABUS ARON ET NOMEN EJUS ELISABET ERANT AUTEM JUSTI AMBO ANTE DEUM INCEDENTES IN OMNIBUS MANDATIS ET JUSTIFICATIONIBUS DOMINI SINE QUADERELLA ET NON ERAT ILLIS FILIUS". . . . .

"PATER NOSTER QUI ES IN CAELIS SANCTIFICETUR NOMEN TUUM ADVENIAT REGNUM TUUM FIAT VOLUNTAS TUA SICUT IN CAELO ET IN TERRA PANEM NOSTRUM SUPERSUBSTANTIALEM DA NOBIS HODIE ET DEMITTE NOBIS DEBITA NOSTRA SICUT NOS DIMITTIMUS DEBITORIBUS NOSTRIS ET NE INDUCAS NOS IN TENTATIONEM SED LIBERA NOS A MALO".<sup>72</sup>

The MS. is numbered in the Cotton. Biblioth., *Nero D. iv.* It has the Prefatory Epist. of St. Jerome to Pope Damasus, the Eusebian Canons, the arrangements and summaries of each Gospel. The Anglo-Saxon entry at the end of St. Matthew's Gospel has been thus translated: "Thou, O living God, bear in mind Eadfrith, and Ethelwald, and Billfrith, and Aldred the sinner. These four, with God's help, were employed upon this book". A longer entry at the end of the volume is as follows: "Eadfrith, bishop over the church of Lindisfarne, wrote this book in honour of God and St. Cuthbert, and all the company of saints in this island; and Ethelwald, bishop of Lindisfarne, made an outer cover, and adorned it as well as he was able; and Billfrith, the anchorite, wrought the metal work of the ornaments on the outside thereof, and decked it with gold and gems, overlaid also with silver and unalloyed metal; and Aldred, an unworthy and most miserable priest, by the help of God and St. Cuthbert, overglossed the same in English, etc.".

13. The *Stowe Missal*, which, in the beginning of this century, was illustrated by Dr. O'Connor in the appendix to his *Stowe Catalogue* (vol. i.) and in the second volume of *Rerum Hibernicarum Scriptores*, and more lately gave occasion to a valuable archaeological essay of Dr. Todd,<sup>73</sup> contains the Latin Gospel of St. John.

<sup>70</sup> *Ep. Ded.*, page clxxvi.

<sup>71</sup> See *fac-simile* of this passage in Westwood, *Paleogr. Sac.*, pl. 45.

<sup>72</sup> *Fac-similes* of these two passages in O'Connor, *Rer. Hib. Scrip.*, ep. ded., p. xcii. seqq.

<sup>73</sup> In *Transactions of the Royal Irish Academy*, vol. xxiii. June 23, 1856.

This Missal forms part of the famous Stowe collection, and hence derived its present name: it is now in the library of Lord Ashburnham, and is undoubtedly the most important MS. of his vast collection. It is encased in an Irish *cumdach* of venerable antiquity, which is plated with silver and enriched with various ornaments. Dr. Todd proves that the Irish inscriptions on the lower side of the case cannot be later than the middle of the eleventh century. One inscription prays: "The blessing of God on every soul who deserves it"; and another asks "A prayer for Donnchadh son of Brian, king of Ireland". It was in the year 1023 that Donnchadh, son of Brian, laid claim to the sovereignty of Ireland, and as he was driven from the kingdom in 1064, we have the limits clearly defined within which the above inscription was written. Some of the other inscriptions are very much effaced; sufficient however remains to show their reference to Lower Ormond, and if Dr. Todd's conjecture be admitted, they specially refer to the monastery of Lothra, founded by St. Ruadhan in the sixth century. He thus writes: "It is certain from these inscriptions that the MS. for which this precious shrine was made belonged to some church in Munster; for, the older inscriptions represent it as having been enshrined by Donnchadh, son of Brian Borumha, and Mac Raith O'Donnchadha, the great-grandson of Callachan Caisil, both of them kings of Cashel or of Munster; and the later inscriptions connect it with O'Kennedy's country, or Lower Ormond, and in all probability with the Irish monastery of Lothra or Lohra. . . . It is by no means impossible that the MS. contained in this box may have been the original Missal of St. Ruadhan himself, the founder of the monastery of Lothra, who died A.D. 584". Judging from the internal data, the same learned antiquarian concludes that the MS. "may well be deemed older than the sixth century" (*Ibid.*, pag. 15). Moreover, the peculiar form of the prayer *Hanc igitur* in the Canon of the Mass proves it to have been written whilst remnants of paganism were still to be found in the island. It is as follows: "*Hanc igitur oblationem servitutis nostrae Ecclesiae sed et cunctae familiae tuae quam tibi offerimus in honorem Domini nostri Jesu Christi, et in commemorationem beatorum Martirum tuorum, in hac ecclesia quam famulus tuus ad honorem nominis gloriae tuae aedificavit quaesumus Domine ut placatus suscipias eumque atque omnem populum ab idulorum cultura eripias et ad te Dominum patrem omnipotentem convertas*".

The MS. begins with the Gospel of St. John. An illuminated drawing of the Evangelist occupies one page. He is represented as holding the Book of the Gospel in his hand, and he is sur-

mounted by the eagle. In the next page the initial *In* is beautifully and elaborately drawn, and the ornamental border with the usual Irish emblems runs around the whole page. The first page of the text is as follows:—

“IN PRINCIPIO ERAT VERBUM ET VERBUM ERAT APUD DEUM ET DEUS ERAT VERBUM HOC ERAT IN PRINCIPIO APUD DEUM OMNIA PER IPSUM FACTA SUNT ET SINE IPSO FACTUM EST NIHIL QUOD FACTUM EST IN EO VITA EST ET VITA ERAT LUX HOMINUM ET LUX IN TENEBRIS LUCET ET TENEBRAE EAM NON COMPREHENDERUNT”.

14. The volume of *The Gospels of Mael Brith Mac Durnan* is one of the chief ornaments of the Manuscript Library at Lambeth.<sup>74</sup> It is a small vellum volume, and contains the four Gospels in Latin, written in the minuscule Irish character. On a vacant space after the genealogies the following inscription is inserted in a hand of the tenth century:—

“Maeielbridus Mac Durnani istum Textum per Triquadrum Deo digne dogmatizat. Ast Aethelstanus Anglosaexana Rex et Rector, Doruvernensi Metropoli dat per aevum”.

In the margin is added in a much later hand the year 925. This inscription has given rise to much literary controversy, and has been variously translated by Mr. Lewis Morris, Mr. Pegge, Dr. Todd, and others. Westwood, in his *Fac-similes*, justly remarks that at all events it does not indicate that the Archbishop Mac Durnan was the writer of the volume. This same antiquarian adds: “From the palaeographical peculiarities of the volume, I have no doubt that it was written by the same hand as the Gospels in the *Book of Armagh*, which is now ascertained to have been written by a scribe named Ferdomnach in 807, which may probably be regarded as near the date of the Gospels of Maeiel Brith Mac Durnan”. Dr. Todd published a very interesting paper descriptive of this MS. in the *British Magazine* for August 1838; he there expressly lays down that “this beautiful volume is a MS. of the seventh century . . . . . and it bears decisive and satisfactory evidence of having been written in Ireland” (pag. 142).

Maelbrigid Mac Dornan, also written Mac Tornan, was abbot of Derry in the ninth century, and was subsequently promoted to the see of Armagh in the year 885. He died A.D. 927. The Irish annalists speak in the highest terms of Maelbrigid, and extol his piety, charity, and learning. His death is thus chronicled by the Four Masters: “Maolbrighde Mac Tornan, com-

<sup>74</sup> Westwood, in his *Paleographia Sac. Pict.*, devotes three plates to this important MS.



harb of Patrick, Columbkille, and Adamnan, head of the piety of all Ireland, and of almost all Europe, died at an advanced and happy old age on the 20th of February". The *Annals of Ulster* thus register the same event: "Maolbrighde Mac Tormán, comharb of Patrick and Columbkille, felice senectute quievit".

King Athelstan succeeded to the throne of the Anglo-Saxons in the year 925: and Dr. Todd conjectures that "the present copy of the Gospels may have been a present sent him by Maelbrigid on his accession: and if it was then deemed a suitable present for a prince, it must have been even then regarded as a volume of some antiquity and value".<sup>75</sup> Perhaps, then, the inscription which has already been given may be thus interpreted: "*Maelbride O'Dornan for three quarters of a century teaches these Gospels, i.e., shows them forth, in his life: but Athelstan gives them for ever to the metropolis of Canterbury*". This interpretation must have the merit, at least, of being historically correct, whilst the various interpretations hitherto proposed have little save their blunders to commend them.<sup>76</sup>

An Irish gloss or note in the Irish language is written in the margin at the passage of St. Matthew xxvii., on our Saviour's passion: *mór arrairra fóm coimria nime agur talman*. "Great dishonour this upon the Incarnate God of heaven and earth".

The text of the MS. agrees in the main with the Vulgate, but retains many of the ante-Hieronymian readings. Two specimens will suffice:—

"PATER NOSTER QUI ES IN COELIS SANCIFICETUR NOMEN TUUM ADVENIAT REGNUM TUUM FIAT VOLUNTAS TUA SICUT IN COELO ET IN TERRA. PANEM NOSTRUM COTIDIANUM DA NOBIS HODIE ET DIMITTE NOBIS DEBITA NOSTRA SICUT ET NOS DIMISIMUS DEBITORIBUS NOSTRIS ET NE NOS INDUCAS IN TEMPTATIONEM SED LIBERA NOS A MALO. AMEN. . . .

"VIDENS AUTEM JESUS TURBAS ASCENDIT IN MONTEM ET CUM SEDISSET ACCESSERUNT AD EUM DISCIPULI EJUS ET APERIENS OS SUUM DOCEBAT EOS Dicens. BEATI PAUPERES SPIRITU QUONIAM IPSORUM EST REGNUM COELORUM. BEATI MITES QUONIAM IPSI POSSIDEBUNT TERRAM. BEATI QUI LUGENT NUNC QUONIAM IPSI CONSOLABUNTUR. BEATI QUI ESURIUNT ET SITIUNT QUONIAM IPSI SATURABUNTUR. BEATI MISERICOR

<sup>75</sup> *Brit. Mag.*, loc. cit. pag. 144.

<sup>76</sup> Morris, in *Cambrian Register*, vol. i. pag. 358, translates it "Maelbrith, the son of Durnan, does worthily expound this text by references, but Athelstan, etc.". Samuel Pegge, *Ibid.*, pag. 365, conjectures that the formula should be "*per triquadrum Dominum*", and translates it "by the assistance of the Trinity". Dr. Todd does not give any opinion, but mentions that "a learned friend had suggested that *dogmatizat* may, perhaps, mean sanctions or testifies to the accuracy of this copy of the Gospels".

DES QUONIAM IPSI MISERICORDIAM CONSEQUENTUR. BEATI MUNDO CORDE QUONIAM IPSI DEUM VIDEBUNT. BEATI PACIFICI QUONIAM FILII DEI VOCABUNTUR. BEATI QUI PERSECUTIONEM PATIUNTUR PROPTER JUSTITIAM QUONIAM IPSORUM EST REGNUM COELORUM. BEATI ESTIS CUM MALEDIXERUNT VOBIS HOMINES ET PERSECUTI VOS FUERUNT ET DIXERUNT OMNE MALUM ADVERSUS VOS MENTIENTES PROPTER ME GAUDETE ET EXULTATE . . . .”

15. Westwood<sup>77</sup> has published *fac-similes* from another Irish MS. of the Gospels preserved in the Capitular Library of Durham, marked A. II. 16. It is in folio, the vellum leaves measuring fourteen inches by ten; each page has thirty lines, and is written in double columns.

In a MS. catalogue of the library, written in the year 1395, this volume is described as “Quatuor Evangelia de manu Bedae”. Westwood adds: “That some portion of the volume may have been written by Venerable Bede, may be possible, as the latter portions of the text exhibit two, if not three, distinct hand-writings”. At all events it dates back to the age of Bede, and is probably of an earlier date. The following is a specimen of its text:—

“FUIT JOHANNIS IN DESERTO BAPTIZANS ET PRAEDICANS BAPTISMUM POENITENTIAE IN REMISSIONEM PECCATORUM.

“ET ERAT JOHANNIS VESTITUS PILIS CAMELLI ET ZONA PELICIA CIRCA LUMBOS EJUS ET LUCUSTAS ET MEL SILVESTRE AEDEBAT”.

16. The *Book of Deir*, preserved in the University Library, Cambridge (I. i. vi. 32), is of a small but rather wide octavo form, and contains the Gospel of St. John, with portions of the other three Gospels. This MS., which is certainly not later than the ninth century, contains in the vacant spaces several entries in the old Irish language referring to St. Columba's monastery of Iona. At the end of St. John's Gospel the *Credo* is inserted in full, and it is followed by three lines in Irish: “Be it on the conscience of every man to whom shall be any advantage from this book, to pray for a blessing upon the soul of the wretch who wrote it”.<sup>78</sup>

The Gospel of St. Matthew thus begins:

“LIBER GENERATIONIS JESU XTI FILII DAVID FILII

<sup>77</sup> *Fac-similes*, etc., pag. 9.

<sup>78</sup> Westwood, *Fac-similes*, etc., p. 91. The Irish entries have been printed in full in *fac-simile* by the photo-lithographic process, by Sir W. James, at the head of the national work on the historical documents of Scotland. A translation of them was also given by Stokes in *Saturday Review*, 8th December, 1860.

ABRACHAM. ABRACHAM GENUIT ISSAC, ISSAC AUTEM GENUIT JACOB, JACOB AUTEM GENUIT JUDAM, JUDAM ET FRATRES EJUS. JUDAS AUTEM GENUIT PHARES ET ZARAM DE THAMAR. PHARES AUTEM.....".

At the end of the genealogy of our Saviour is the rubric: "*Finit prologus. Item incipit nunc evangelium secundum Matheum*".

Then follows, with illuminated capital and an elaborately ornamented border:

"XTI AUTEM GENERATIO SIC ERAT CUM ESSET DISPONSATA MATER EJUS MARIA JOSEPH ANTEQUAM CONVENIRENT INVENTA EST IN UTERO HABENS DE SPIRITU SANCTO. JOSEPH AUTEM VIR EJUS CUM ESSET HOMO JUSTUS ET NOLET EAM TRADUCERE VOLUIT OCCULTE DEMITTERE EAM HAEC AUTEM EO COGITANTE ECCE ANGELUS DOMINI IN SOMNIS APPARUIT EI Dicens JOSEPH FILII DAVID NOLII TIMERE ACCIPERE MARIAM COJUEM TUAM QUOD ENIM EX EA NASCETUR DE SPIRITU SANCTO EST PARIET AUTEM FILIUM ET VOCABIS NOMEN EJUS JESUM IPSE ENIM SALVUM FACIENS.....".

The beginning of St. Luke's Gospel has some remarkable readings:

"QUONIAM QUIDEM MULTI CONATI SUNT ORDINARE NARRATIONEM QUAE IN NOBIS COMPLETAE SUNT RERUM SICUT TRADIDERUNT NOBIS QUI AB INITIO IPSI VIDERUNT ET MINISTRI FUERUNT SERMONIS VISUM EST ET MIHI ADSECUTO PRINCIPIO OMNIBUS DILIGENTER EX ORDINE TIBI SCRIBERE OBTIME THEOFILE UT COGNOSCAS EORUM....."

St. John's Gospel thus commences:

"IN PRINCIPIO ERAT VERBUM ET VERBUM ERAT APUD DEUM ET DEUS ERAT VERBUM HOC ERAT IN PRINCIPIO APUD DEUM OMNIA PER IPSUM FACTA SUNT ET SINE IP SO FACTUM EST NIHIL QUOD FACTUM EST IN IP SO VITA EST ET VITA ERAT LUX HOMINUM".

17. *Gospels of Mac Regol*. These Gospels, generally called the "Rushworth Gospels", having formerly belonged to a gentleman named Rushworth, are preserved in the Bodleian Library (D. 24, No. 3946). The MS. at present consists of 169 leaves, and contains the Vulgate Latin text of the Gospels. It is highly prized for its style of writing and illuminations, and especially for its interlinear Anglo-Saxon gloss. The usual canons and prefaces are not added in this MS., and in the body of the text some leaves are wanting. The Gospel of St. Matthew extends to folio 50. *verso*, and at its end is added: "*Finit Amen Finit Amen Finit*".

The last two pages of St. John's Gospel are surrounded



by a narrow ornamental border in compartments, and the last page of the volume is also illuminated, being divided by ornamental frames into square compartments, in which the following verses are inscribed:

"Mattheus instituit virtutum tramite mores bene vivendi justo dedit ordine leges:

"Marcus amat terras inter caelumque volare et vehemens aquila stricto secut omnia labu:

"Lucas uberius descripsit proelia Christi jure sacro vitulus quia vatum moenia fatur:

"Johannis fremit ore leo similisque rudenti intonat intonate terne pandens misteria vite:

"Macregol dipinxit hoc evangelium Quicumque legerit:

"Et intellexerit istam narrationem oret pro Macreguil scriptore".<sup>79</sup>

The last verses preserve the name of the remarkable scribe to whom we are indebted for this volume.<sup>80</sup> His death is registered in the *Annals of the Four Masters*, in the year 820, where he is styled "Mac Riagail Ua Maglena, scribe, bishop, and abbot of Birr". A like entry is found in the *Annals of Ulster*, ad an. 821.<sup>81</sup> Thus, the date of the MS. cannot be later than the beginning of the ninth century. The text is the Latin Vulgate, but with many peculiar readings. Thus, in the Gospel of St. Matthew, xix. it has:

"ET FACTUM EST CUM CONSUMMASSET JESUS SERMONES ISTOS TRANSTULIT SE A GALILEA ET VENIT IN FINES JUDAE TRANS JORDANEM ET SECUTAE SUNT EUM TURBAE MULTAE ET CURAVIT EOS IBI".—In ch. xxvii. v. 48, it has the passage: CAETERI VERO DICEBANT SINE VIDEAMUS AN VENIAT HELIAS ET LIBERAT EUM ALIUS AUTEM ACCEPTA LANCEA POPUNGIT LATUS EJUS ET EXIIT AQUA ET SANGUIS". In the same chapter, v. 66, instead of "SIGNANTES LAPIDEM CUM CUSTODIBUS", it has the curious reading: "SIGNANTES LAPIDEM ET DISCESERUNT".

In Mark ii. "ET EGRESSUS EST RURSUS AD MARE OMNISQUE TURBA VENIEBAT AD EUM ET DOCEBAT EOS ET CUM PRAETERIRET VIDIT LEVIN ALPHEI SEDENTEM AD TELONUM ET AIT ILLI SEQUERE ME ET SURGENS SECUTUS EST EUM".

In John i. "FUIT HOMO MISUS A DEO CUI NOMEN ERAT JOHANNIS HIC VENIT IN TESTIMONIUM UT TESTIMONIUM PERHIBERET DE LUMINE ERAT LUX VERA QUAE INLUMINAT

<sup>79</sup> Westwood, *Facsimil.*, pag. 55.

<sup>80</sup> Westwood, *Fac-similes*, p. 35.

<sup>81</sup> O'Donovan's *Four Masters*, p. 431; O'Connor, in *Rer. Hüb. Scriptt.*, vol. 2 p. 203.

OMNEM HOMINEM VENIENTEM IN HUNC MUNDUM. IN HOC MUNDO ERAT", ETC. And again xxi. "PETRUS DICIT JESU DOMINE HIC AUTEM QUID. DICIT EI JESUS SIC EUM VOLO MANERE DONEC VENIAM QUID AD TE TU ME SEQUE EXIVIT ERGO SERMO ISTE INTER FRATRES QUIA DISCIPULUS ILLE NON MORITUR NON DIXIT JESUS NON MORITUR SED SIC EUM VOLO MANERE DONEC VENIO QUID AD TE".

18. *The Book of Dimma*. This MS. of the Four Gospels is of small quarto size, measuring seven inches by five and a-half, and contains 74 leaves of vellum. It is preserved in T.C.D., No. A. 4. 23. There are illuminated drawings of the three first Evangelists at the beginning of their respective Gospels; and St. John's Gospel is preceded by the representation of an eagle which is most elaborately adorned. On the figure of St. Luke, in an ancient hand, is written "*Reliquiæ Petri et Pauli*", which probably refers to the relics of these holy apostles being preserved in the same *Cumdach* with this book of the Gospels, as often happened in our early Church.

At the end of each of the Gospels there is an Irish colophon giving the name of the writer. Thus, at the end of St. Matthew's Gospel: "A prayer for Dimma, who wrote this book for God and for a blessing."<sup>82</sup> At the end of St. Mark: "Finit, Amen, Deo gratias ago. A prayer for Dimma". After St. Luke's Gospel: "A prayer for Dimmon of Dissidu, for whom this book was written, and for the soul of the writer, Amen."<sup>83</sup> At the end of St. John's Gospel is written: "Finit, Amen. Dimma Mac Nathi", and an Irish verse is added, "perhaps, says Curry, the oldest piece of pure Gaelic writing in existence," which he thus translates:

"I beseech for me as the price of my labour.

(In the following chapters without mistake)

That I be not venomously criticized;

And the residence of the Heavens."<sup>84</sup>

The name of the scribe Dimma is not unknown in Irish history. Colgan, in his *Acta Sanctorum*, gives us an extract from the life of St. Cronan, who founded the Abbey of Roscrea in the beginning of the seventh century, in which it is said that this holy man on a certain occasion engaged a skilful scribe named Dimma to make a copy of the four Gospels. For forty days and forty nights the scribe applied himself to this work without interruption, and such was his ardour that he felt neither

<sup>82</sup> Curry, *Lectures*, i. 652.

<sup>83</sup> Betham's *Irish Antiquarian Researches*, pag. 52.

<sup>84</sup> Curry, *loc. cit.* 652.

fatigue nor the want of repose and food: he thought that the forty days and nights were but one day, and in that period the copy of the Gospels was not so elegantly as correctly written" (*non tam bona quam veraci littera scripsit*).<sup>85</sup> This last part of the description fully agrees with the MS. which now bears the name of Dimma. "Dimma's book", says Sir William Betham, "has evidently been hastily written; the first four pages are much better and smaller written than the remainder, which bear marks of haste, having been written without lines, a singular circumstance in an old MS. ...It may be asserted with confidence to be the MS. on which the legend of St. Cronan is founded".<sup>86</sup>

All the circumstances connected with the MS. tend to confirm this opinion. Its illuminated work as well as the writing itself bring us back to the earliest school of Irish art, and from time immemorial down to the dissolution of the monasteries it was preserved in a rich shrine or *Cumdach* in the abbey of Roscrea.<sup>87</sup> This shrine may now be seen in T.C.D. It is a richly ornamented case, the earlier portion of which dates back to a very early period, whilst its more recent inscriptions record its repairs in the twelfth and again in the thirteenth century by the spiritual and lay heads of the district of Roscrea.<sup>88</sup>

It is remarkable that in this MS., immediately after the Gospel of St. Luke, the ritual and prayers for visiting the sick are inserted, occupying three pages and a-half, written in the original hand. It mentions Extreme Unction, at which the words are to be used: "Ungo te oleo sanctificato in nomine Trinitatis ut salveris in saecula saeculorum, Amen". Before giving the Holy Communion it prescribes that the kiss of peace be given to the sick man with the words: "Pax et communicatio sanctorum tuorum, Xte Jesu, sit semper vobiscum". And then it is added "Des ei Eucharistian dicens: *Corpus et sanguis Domini nostri Jesu Xti filii Dei vivi conservat animam tuam in vitam aeternam Amen*".<sup>89</sup>

The genealogy with which the Gospel of St. Matthew begins presents an unique and very remarkable reading:

"LIBER GENERATIONIS JESU XTI FILII DAVID FILII ABRAM. ABRAM AUTEM GENUIT ISSAC ETC.....JACOB AUTEM GENUIT JOSEPH VIR MARIAE DE QUA NATUS EST

<sup>85</sup> Colgan, *Acta SS.*, pag. 16.

<sup>86</sup> Betham, *Antiq. Res.*, pag. 48.

<sup>87</sup> *Ibid.*, 44.

<sup>88</sup> See these inscriptions with facsimiles of the shrine in Betham's *Antiq. Research.*

<sup>89</sup> See for these and other extracts the Introduction to the *Missale de Arbuthnott* by the Bishop of Brechin, pag. xii.



JESUS XTUS, CUI DISPONSATA VIRGO MARIA, MARIA AUTEM GENUIT JESUM QUI DICITUR XTUS".

Then follows in another column with illuminated capitals :

"XTI AUTEM GENERATIO SIC ERAT CUM ESSET DISPONSATA MATER EJUS MARIA JOSEPH ANTEQUAM CONVENIRENT INVENTA EST IN UTERO HABENS DE SPIRITU SANCTO. JOSEPH AUTEM VIR EJUS CUM ESSET HOMO JUSTUS ET NOLET EAM TRADUCERE VOLUIT OCULTE DIMITTERE EAM HOC VERO EO COGITANTE ECCE ANGELUS DOMINI IN SOMNIS APARUIT EI Dicens, JOSEPH FILII DAVID NOLI TIMERE ACCIPERE MARIAM CONJUGEM TUAM QUOD ENIM EX EA NASCETUR DE SPIRITU SANCTO EST".

The "Our Father", Matt., vi. 9, has some very peculiar readings :

"PATER NOSTER QUI ES IN CAELIS SANCTIFICETUR NOMEN TUUM ADVENIAT REGNUM TUUM FIAT VOLUNTAS TUA SICUT IN CAELO ET IN TERRA PANEM NOSTRUM CODDITIANUM DA NOBIS HODIE ET DEMITE NOBIS DEBITA NOSTRA SICUT ET NOS DEMISSIMUS DEBITORIBUS NOSTRIS ET NE PATIARIS NOS INDUCI IN TEMPTATIONEM SED LIBERA NOS A MALO".

In chap. xxvii. of St. Matthew, verse 48, we meet with the interpolated passage :

"ALIIUS AUTEM ACCEPTA LANCEA PUPUNGIT LATUS EJUS ET EXIVIT AQUA ET SANGUIS. JESUS AUTEM ITERUM CLAMANS VOCE MAGNA EMISSIT SPIRITUM".

St. Mark's Gospel thus commences :

"INITIUM EVANGELII JESU XTI FILII DEI SICUT SCRIPTUM EST IN ASSAIA PROFETA ECCE MITO ANGELUM MEUM ANTE FACIEM TUAM QUI PRAEPARABIT VIAM TUAM ANTE TE. VOX CLAMANTIS IN DESERTO PARATE VIAM DOMINI RECTAS FACITE SEMITAS EJUS".

The Gospel of St. Luke begins :

"QUONIAM QUIDEM MULTI QUONATI SUNT ORDINARE NARRATIONEM QUAE IN NOBIS COMPLETAE SUNT RERUM".

The beginning of St. John's Gospel is as follows :

"IN PRINCIPIO ERAT VERBUM ET VERBUM ERAT APUD DEUM ET DEUS ERAT VERBUM HOC ERAT IN PRINCIPIO APUD DEUM. OMNIA PER IPSUM FACTA SUNT ET SINE IPSO FACTUM EST NIHIL QUOD FACTUM EST. IN IPSO VITA EST ET VITA ERAT LUX HOMINUM ET LUX IN TENEBRIS LUCET ET TENEBRAE EAM NON COMPREHENDERUNT. FUT HOMO MISSUS A DEO CUI NOMEN ERAT JOHANNIS HIC VENIT...".

19. *St. Moling's Gospels*. This volume, which has much in common with the *Book of Dimma*, is also preserved in Trinity College, Dublin. It contains a copy of the Four Gospels in Latin

dating from the seventh century, and it still retains the *Cumdach*, or ornamental shrine, with which it was enriched by the piety of the faithful through reverence for the holy bishop to whom it had belonged.

St. Moling, towards the middle of the seventh century, founded a great monastery at *Achadh-Cainidh*, which subsequently bore his name, and was known as *Teach-Moling*, now anglicized *St. Mullins*. He was subsequently elevated to the episcopate in the see of Ferns, and so remarkable was his sanctity, that in his honour a preëminence above all the sees of the province of Leinster was decreed to the bishop of Ferns. Many years before his death he resigned his see, and withdrew to his loved monastery at *Teach-Moling*, and there, in his eighty-second year, was summoned to his reward, A.D. 696.<sup>90</sup> This copy of the Gospels was handed down with religious veneration for centuries in the Kavanagh family, which claimed St. Moling as their patron, till the beginning of the present century, when it was presented by the representative of that family, Mr. Kavanagh of Borris, to the library of Trinity College, Dublin.

Like the *Book of Dimma*, St. Moling's Gospels present the ritual to be observed when visiting the sick. It is inserted in the original hand, immediately after the Gospel of St. Matthew. It begins with the prayer: "*Oremus fratres charissimi pro spiritu chari nostri N. qui secundum carnem egritudinem patitur, ut Dominus ei relevationem doloris praesentiet, vitam concedat, tutelam salutis, remunerationem bonorum operum impertiat, per Dominum*". A special blessing is given for water to be sprinkled over the sick man. Then follows the rubric: "Tunc unges eum oleo", and the words to be used whilst administering Extreme Unction are added: "*Unguo te de oleo sanctificationis in nomine Dei Patris et Filii et Spiritus Sancti, ut salvus eris in nomine Sanctae Trinitatis*". The rubric for communion is "Tunc reficitur corpore et sanguine", and then follow the words with which the holy Communion is administered: "*Corpus cum sanguine Domini nostri Ihesu Xsti sanitas sit tibi in vitam aeternam*", and the sweet prayer is added, "*Custodi intra nos Domine gloriae tuae munus ut adversus omnia praesentis saeculi mala Eucharistiae quam percipimus viribus muniamur, per Dominum . . . . . Reflecti Xti corpore et sanguine, tibi semper Domine dicamus alleluja*".<sup>91</sup>

"GENUIT JACOB JACOB AUTEM GENUIT JOSEPH CUI DIS-

<sup>90</sup> *Annals of Ulster*, and *Annals of Four Masters*, ad an. 696. The *Annals of Clonmacnoise* place his death in the year 692, and commemorate his "holiness and sanctity".

<sup>91</sup> See *fac-simile* of this passage in Curry's *Lectures*, vol. i. appendix M.

PONSATA EST VIRGO MARIA QUAE GENUIT IHESUM QUI DICI-  
TUR XSTUS" (*Matt. i.*).

"XTI AUTEM GENERATIO SIC ERAT CUM ESSET DISPONSATA  
MATER EJUS MARIA JOSEPH ANTEQUAM CONVENIRENT IN-  
VENTA EST IN UTERO HABENS DE SPIRITU SANCTO JOSEPH  
AUTEM VIR EJUS CUM ESSET HOMO JUSTUS ET NOLET EAM  
TRADUCERE VOLUIT OCCULTE DEMITTERE EAM HAEC AUTEM  
EO COGITANTE ECCE ANGELUS DOMINI IN SOMPNIS APPA-  
RUIT EI Dicens JOSEPH FILI DAVID NOLI TIMERE ACCI-  
PERE MARIAM CONJUGEM TUAM QUOD ENIM IN EA NASCE-  
TUR DE SPIRITU SANCTO EST" (*Matt. ii.*).

In Matthew vi. the Lord's Prayer is thus given :

"PATER NOSTER QUI ES IN CAELIS SANCTIFICETUR NO-  
MEN TUUM ADVENIAT REGNUM TUUM FIAT VOLUNTAS TUA  
SICUT IN CAELO ET IN TERRA PANEM NOSTRUM SUPERSUB-  
STANTIALEM DA NOBIS HODIE ET REMITTE NOBIS DEBITA  
NOSTRA SICUT ET NOS REMITTEMUS DEBITORIBUS NOSTRIS ET  
NE PATIARIS NOS INDUCI IN TEMPTATIONEM SED LIBERA NOS  
A MALO".

In the Gospel of St. Luke we read :

"UNA AUTEM SABBATI VALDE DELUCULO VENERUNT AD  
MONUMENTUM MARIA MAGDALENA ET ALTERA MARIA POR-  
TANTES AROMATA QUAE PARAVERANT ET INVENERUNT LAPI-  
DEM REVOLUTUM A MONOMENTO ET INGRESSAE NON INVE-  
RUNT CORPUS DOMINI JHESU IN MONOMENTO ET FACTUM EST  
DUM MENTE CONSTERNATAE ESSENT DE ISTO ET ECCE DUO VIRI  
STETERUNT SECUS ILLAS IN VESTE FULGENTI" (*Luke, xxiv.*).

The "Argument" of St. Jerome is prefixed to the text of the  
Gospel of St. John. It contains some interesting peculiar read-  
ings :

"De Johanne. Hic est Johannes evangelista unus de xii.  
discipulis Dei qui virgo electus a Deo est. Quem de nuptiis  
nolentem nubere vocavit Deus. Cui virginitatis in hoc du-  
plex testimonium in evangelio datur quod et praeceptis<sup>92</sup> delec-  
tus a Deo dicitur et huic matrem suam iens ad crucem com-  
mendavit Deus ut virginem virgo servaret".

At the end of the Gospel of St. John we read :

"Finit Amen Finit. O Tu quicumque scripseris vel scrutatus  
fueris vel etiam videris hoc volumen Deum orat. . . . Nomen  
autem scriptoris Muling dicitur. Finiunt quatuor Evangelia".

20. There is another most venerable and ancient uncial MS.  
copy of the Gospels in T.C.D., marked in the catalogue A.4.15,  
which, in the opinion of our leading antiquarians, vies in anti-

<sup>92</sup> It is thus in the MS., but it is a manifest error for *prae caeteris*.



quity even with the Gospels of the *Domnach Airgid*.<sup>93</sup> Its history, however, is completely unknown, and a considerable portion of its vellum leaves has been destroyed by exposure to damp and by the carelessness of its possessors in past times.

Should conjecture be allowed, it would seem to me that this is no other than the volume known as St. Martin's Gospels in our early Church. In the old Irish life of St. Columba it is said that, when visiting on one occasion the relics of St. Martin at Tours, he received as a gift the copy of the Gospels that had lain on St. Martin's breast for one hundred years.<sup>94</sup> Our annals make mention of this treasure as preserved in the church of Derry in the twelfth century,<sup>95</sup> till a great battle which was fought in the year 1182 between the Norman invaders and the Kinel-Owen, when the latter were defeated, and, as the annals record, "on this occasion the English carried off with them the Gospel of St. Martin".<sup>97</sup> In other ancient records the same volume is called "the Gospel of the Angel", and it is said to have received this name from being shown to St. Columba in the shrine of our apostle. It is thus the account of the discovery of this precious MS. is given in the Annals of Ulster from the ancient chronicle of Cuana: "The relics of Patrick were enshrined sixty years after his death by Columcille. Three precious reliquaries were found in the tomb, viz.: the chalice, and the Angel's Gospel, and the bell of the will. The angel directed Columcille to divide the three reliquaries thus: the chalice to Down, the bell of the will to Armagh, the Gospel of the Angel to Columcille himself: and it is called the Gospel of the Angel because Columcille received it from the hands of the angel".<sup>97</sup>

The order of the gospels in this MS. is very peculiar. St. John follows immediately after St. Matthew, then comes the gospel of St. Luke, and St. Mark holds the last place. At the end of St. Luke is an ornamental illuminated cross, with *Alpha* and *Omega* at either side, and the inscription: "*Explicit secundum Lucanum. Incipit secundum Marcum*".

I copied the following passages from this venerable MS. :—

"ET ACCIPIENS CORAM ILLIS MANDUCAVIT ET RELIQUA ACCEPIT ET DEDIT ILLIS DIXIT AUTEM ILLIS HAEC SUNT VERBA MEA QUAE LOCUTUS SUM AD VOS CUM ADHUC ESSEM

<sup>93</sup> Haddan, *Councils and Eccl. Documents relating to Great Britain and Ireland*, vol. i. (London, 1869), page 190. Reeves calls it "the oldest copy of the Gospels which is known". See his paper on *The Book of Armagh*, pag. 3.

<sup>94</sup> Reeves's *Adamnan*, pag. 324, 325.

<sup>95</sup> *Annals of Ulster*, ad an. 1166.

<sup>96</sup> *Ibid.*, ad an. 1182.

<sup>97</sup> *Ibid.*, ad an. 552.

VOBISCUM QUONIAM OPORTEBAT OMNIA IMPLERI QUAE SCRIBTA SUNT IN LEGE MOYSI ET PROFETIS ET IN PSALMIS DE ME. TUNC APERUIT SENSUM EORUM UT intellegerent SCRIBTURAS ET DIXIT ILLIS QUONIAM SCRIBTUM EST XTUM PATI ET RESURGERE A MORTUIS TERTIA DIE ET PRAEDICARI IN NOMINE EJUS PENITENTIAM ET REMISSIONEM PECCATORUM IN OMNES GENTES INCIPIENS AB HIERUSALEM. VOS AUTEM TESTES ESTIS HORUM ET EGO..." (*Luke*, xxiv.).

"QUOD VIDIT ET AUDIVIT TESTATUR ET TESTIMONIUM ILLIUS NEMO ACCIPIT QUI ACCIPIT TESTIMONIUM EJUS... QUONIAM DEUS VERAX EST QUEM ENIM MISIT DEUS VERBA DEI LOQUITUR NON ENIM AD MENSURAM DAT DEUS SPIRITUM QUIA PATER DILIGIT FILIUM ET OMNIA DEDIT IN MANU EJUS."<sup>98</sup> QUI CREDIT IN FILIO HABET VITAM AETERNAM QUI AUTEM NON CREDIT IN FILIO NON VIDEBIT VITAM SED IRA DEI MANET SUPER EUM"—(*John*, iii.).

21. The *Codex Maelbrihte* gave occasion to many angry controversies in the last century, and is now preserved among the Harleian MSS. in the British Museum, No. 1082. It formerly belonged to the *Bibliothèque Royale* of France,<sup>99</sup> and was classed there among the Anglo-Saxon MSS. John Toland, our countryman of irreligious memory, was the first to bring it under the notice of the British public, and soon after it was purchased by the Earl of Oxford as a MS. of the sixth century. It was particularly prized, however, on account of its several glosses and other entries, which were unintelligible to its original owners, but from the frequent recurrence of Latin words were supposed to be a Latino-Saxon vocabulary. With the progress of the study of the Irish language and antiquities all these theories soon vanished. All the features of the MS. were found to belong to the very latest period of the old Irish school, and its colophons, being deciphered and translated, fixed the precise date of the MS. in the year 1138. The supposed Latino-Saxon dictionary was found to be passages from ancient Irish poems with Latin phrases interspersed, and evidently copied from some far earlier sources. These have been since translated by O'Curry and other Irish scholars, and are printed by Dr. Reeves in *Proceedings of R. I. A.*<sup>100</sup>

One of the Irish verses bears the name of *Fothadh na-*

<sup>98</sup> The words underlined are cancelled in MS., but nevertheless they can be distinctly traced.

<sup>99</sup> See Simon's *Bibliothèque Critique*, vol. i. pag. 271; also *Gentleman's Magazine* for 1832, vol. cii. pag. 30; and Sylvestre's *Universal Palaeogr.*, translated by Sir F. Madden, vol. ii. pag. 472.

<sup>100</sup> *Proceedings*, vol. v. pag. 45-67.

*Canoine*, who flourished in the year 804,<sup>101</sup> and is thus translated by Dr. Reeves:—

“Wisdom, understanding, counsel,  
Knowledge, might, stern watchfulness,  
The fear of the Lord in this passing world,  
Are the seven gifts of God unto us”.

The MS. at present consists of one hundred and fifty-six folios in small quarto, and contains the Latin *Vulgate* text of the four Gospels, with the usual “Arguments” of St. Jerome prefixed. The name of the scribe was *Maelbrigte O’Maelunaigh*, who, in each of the colophons, asks the reader’s prayers. The conclusion of the whole volume is as follows: “A prayer for Maelbrigid O’Maelunaigh, who wrote this book at Armagh. . . . . A blessing on every one who will pardon the faults of this book: let him say a *Pater* for the soul of the scribe. It much requires indulgence, both in the text and commentaries”.

The following passages will suffice to show that, as usual in the Irish MSS., the *Codex Maelbrigte* presents some curious readings:—

“ET FACTUM EST CUM CONSUMMASSET JHESUS SERMONES ISTOS MIGRAVIT A GALILEA ET VENIT IN FINES JUDAE TRANS JORDANEM ET SECUTAE SUNT EUM TURBAE MULTAE ET CURAVIT EOS IBI”—(*Matth. xix.*).

“INITIUM EVANGELII JHESU XTI FILII DEI SICUT SCRIPTUM EST IN ISSAIA PROPHETA ECCE MITTO ANGELUM MEUM ANTE FACIEM TUAM QUI PREPARABIT VIAM TUAM. VOX CLAMANTIS IN DESERTO PARATE VIAM DOMINI RECTAS FACITE SEMITAS EJUS. FUT JOHANNIS IN DESERTO BAPTIZANS”—(*Marc. i.*).

“IN PRINCIPIO ERAT VERBUM ET VERBUM ERAT APUD DEUM ET DEUS ERAT VERBUM, HOC ERAT IN PRINCIPIO APUD DEUM: OMNIA PER IPSUM FACTA SUNT, ET SINE IP SO FACTUM EST NIHIL QUOD FACTUM EST, IN EO VITA EST ET VITA ERAT LUX HOMINUM ET LUX IN TENEBRIS LUCET ET TENEBRAE EAM NON COMPREHENDERUNT” (*Joan. i.*).

22. Another Harleian MS., numbered 1023 in the catalogue of the British Museum, is described by Westwood as “a small quarto volume containing the Four Gospels in Latin, but written in strong-set Irish minuscule characters, and in the *Vulgate* version, with, however, various readings”.<sup>102</sup> To judge from the *fac-similes* given in his plates, it should belong to an earlier date than the *Codex Maelbrigte*. In the first of the following passages the interpolated sentence is retained:

<sup>101</sup> See *Annals of the Four Masters*, ad an. 799.

<sup>102</sup> *Palaeograph. Sac. Pict.*, “Irish MSS.,” pag 7.



“CAETERI VERO DICEBANT SINE VIDEAMUS AN VENIAT HELIAS LIBERARE EUM. ALIUS AUTEM ACCEPTA LANCEA PUPUGIT LATUS EJUS ET EXIIT AQUA ET SANGUIS. JHESUS AUTEM ITERUM CLAMANS VOCE MAGNA EMISIT SPIRITUM”—(*Matth.* xxvii.).

“DOMINE HIC AUTEM QUID DICIT EI JHESUS SIC EGO EUM VOLO MANERE DONEC VENIAM QUID AD TE TU ME SEQUERE. EXIVIT ERGO SERMO ISTE INTER FRATRES QUOD DISCIPULUS ILLE NON MORITUR ET NON DIXIT EI JHESUS NON MORITUR SED SIC EUM VOLO MANERE DONEC VENIAM. HIC EST DISCIPULUS, ETC.” (*John*, xxi.).

23. I have already exceeded the limits allotted to this paper, and yet there are many other monuments of early Irish Biblical literature, which would merit special attention. In the libraries of England we meet with a copy of the Gospels of the tenth century at Oxford C. C. College, No. 122, with portions of SS. John and Luke, at Corp. C., Cambridge, No. 197, and fragments of Matthew and Mark, among the Cotton MSS., marked *Otho*, C.V. The beautiful prayer-book presented to Cambridge University library by George the First (No. L. l. i. 10), and which once belonged to Bishop Ethelwold, but dates from an earlier period, contains a portion of the Gospels, and certainly was the work of an Irish artist.<sup>103</sup> The Irish Gospels of the seventh century, which formerly were preserved at St. Gatien in Tours, are now supposed to form part of the valuable collection of Lord Ashburham.<sup>104</sup> The Gospels of St. Boniface, in the library of Fulda, is “in a true Irish, very small minuscule character”,<sup>105</sup> and is one of the three most ancient MSS.: “Quos in ipso martyrii campo ubi S. Bonifacius Archiepiscopus cum sociis gloriose occubuit manus fidelium recollegerunt ac in sacrarium Fuldense deportarunt”, as the old entry records. At St. Gall, in Switzerland, there are several Biblical MSS., brought thither by its holy founder, or by the Irish pilgrims in the eighth and ninth centuries.<sup>106</sup> One of the most important of these MSS. is a quarto volume of the

<sup>103</sup> Westwood, *Fac-similes*, p. 61.

<sup>104</sup> *Ibid.*, 92, and *Palaeogr. Sac.*, Irish MSS., p. 11. A fac-simile of the first page is given by Schannat, *Vindem. Litt.*, and is copied in *Nouv. Tr. de Diplom.*, vol. iii, plate 59.

<sup>105</sup> At fol. 43 it contains a curious prayer, headed, *hanc luricam Lodinc cantavit ter in omni die*, which begins: “Suffragare Trinitatis unitas, unitatis miserrere trinitas, suffragare quaesso mihi posito maris magni velut in periculo ut non secum trahat me mortalis hujus aevi neque mundi vanitas. Et hoc idem peto a sublimibus coelestis militiae virtutibus”, etc. A paper on this MS. will be found in *Home and Foreign Review*, vol. ii.

<sup>106</sup> See Dr. Reeves's paper on *Early Irish Calligraphy* in *Ulster Journal of Archaeol.*, July, 1869.

Latin Gospels (No. 51), which presents all the peculiar features of the early Irish school. The Gospels known as the Gospels of Willibrord are now preserved in the imperial library, Paris (*Latin Gospels*, No. 693). Dr. Waagen attests that "it is Irish work, and the oldest specimen of the style in existence".<sup>107</sup> The Irish Gospels, formerly preserved at St. Germain des Près (No. 108)<sup>108</sup> have been recently met with by Westwood in the imperial library of St. Petersburg. They date from the eighth century, and contain the Latin Vulgate text. At Wurzburg the Gospels of the Irish martyr St. Killian, stained with his blood, are carefully preserved in the public library, and are shown to the faithful as a precious relic of the saint on his feast-day. The same library has the famous copy of the Epistles of St. Paul, so rich in Celtic glosses, illustrated by Zeuss.<sup>109</sup> It is also enriched with the Gospels of St. Burchard, first bishop of Wurzburg, styled *Scotus*, that is, *an Irishman*, in all the ancient documents of the see. This last MS. is encased in a silver *cumdach*, and at the end of St. Matthew's Gospel has the following curious lines:

"Sicut navigantibus proximus est portus  
Sic et scriptori novissimus versus. Tris  
Digiti scribunt et totum corpus laborat  
Hora pro me scriptore sic Deum habeas protectorem".

In the Ambrosian Library, Milan, the traveller towards the sunny south will meet with a copy of the Latin Gospels in Irish uncials, brought thither from Bobbio, dating from the seventh century, probably written by the hand of the great missionary St. Columbanus. The same library has also a copy of the Epistles of St. Paul, from Bobbio, marked on the catalogue: "Pauli Apostoli Epistolae: item Epistolae aliae septem Canonicae Codex Membr. Bobbiensis saec. ix".

24. The Acts of our early missionary saints refer to other copies of the Sacred Text, which for centuries were treasured up in the countries hallowed by the ministry of these holy men, and which the enquiries of some learned traveller may, perhaps, once more bring to light; such, for instance, are the Gospels of St. Cathaldus at Taranto, and of St. Silas at Lucca. Such too is the Book of St. Duach, archbishop of Armagh, a cotemporary of St. Gildas: he resigned the see of St. Patrick before the middle of the sixth century, and sought a life of retirement and prayer in Cornwall. His life, published

<sup>107</sup> See *Nouv. Tr. de Diplom.*, vol. ii. p. 214, and vol. iii. p. 226.

<sup>108</sup> *Fac-similes*, p. 53.

<sup>109</sup> *Grammatica Celtica*, vol. i. pref. xx.

by Albert Le Grand, assures us that his relics and his book are preserved at Penmarch, and held in veneration there.<sup>110</sup>

25. As regards the text which the Irish MSS. of the S. S. present, it may be safely asserted that it belongs to no particular recension and follows no fixed type. Scarcely two of the many MSS. I have mentioned can be said to be derived from the same immediate source: some of them are manifestly copied from ante-Hieronymian versions, whilst others represent the Vulgate, but with a great variety of different readings. "It is remarkable", writes Dr. Todd, "that the Irish Biblical manuscripts exhibit a text which agrees exactly neither with that which is usually regarded as characteristic of the ante-Hieronymian versions nor with the recension of St. Jerome. This observation is true of the Psalter as well as of the Gospels. In the book of Armagh, the only complete copy of the New Testament that we possess, the Gospels are in the Hieronymian text, or nearly so, the Epistles and Apocalypse in the ante-Hieronymian; all, of course with the usual amount of various readings".<sup>111</sup>

Such a diversity of texts is precisely what we should be led to expect from the lives of our early Saints. The exuberance of the piety of our fathers led them continually away on pilgrimage to the hallowed shrines on the continent, and above all to the holy city of Rome, and thence they brought back with them as precious treasures copies of the Sacred Scriptures. Thus St. Finian of Maghbile, whose death is marked in our Annals in the year 589, brought with him from Italy "the Gospels of pure gold"<sup>112</sup> which a scholiast on the *Felire* of Aengus has explained to indicate that St. Finian was the first who brought to Ireland the corrected text of St. Jerome's version. And so it was with most of the other great saints of our island, of whom it is recorded that they went abroad either as pilgrims in search of piety and learning, or as missionaries to bear to distant lands the light of the Gospel.

For several centuries after St. Jerome's time, his recension, now known as the Latin Vulgate, was not of general use throughout the continent. For instance, St. Leo in the middle of the fifth century uses in his writings an ante-Hieronymian version. St. Gregory the Great, at the close of the sixth century, was the first pontiff to show a decided preference to St.

<sup>110</sup> The Bollandists publish extracts from this life in vol. iii. for June, p. 537. Le Grand gave him the name of *Vouga*, and the Bollandists, finding no such name among the archbishops of Armagh, concluded that his connection with the see of Armagh was a fabulous addition of later times. That name, however, is a mere corruption of the Irish name *Duach*.

<sup>111</sup> *Vetera Mon.*, vol. vi. Descriptive Particulars, etc., pag. 1.

<sup>112</sup> *Felire of Aengus* at 12th September. See also Colgan *Acta SS.* pag. 638.



Jerome's translation; but even then this great pontiff was so far from deeming it a matter of necessity to follow that version, that he excuses himself for using the more recent text, and when consulted by St. Leander of Seville, he wrote to him that the old and new Latin versions had been received alike by his predecessors in the see of Rome, and that Leander was at liberty to make use of either.<sup>113</sup> Thus, for centuries after St. Jerome's time, there was no common Latin text which copyists deemed it necessary to follow. Hence they chose whatever seemed best in the texts that were accessible to them: they sometimes went farther, and substituted provincial phrases and forms of expression for the purer Latinity, which seemed to them obscure; sometimes, too, they introduced into their text, from different versions, two distinct translations of the same word or sentence, and occasionally the marginal glosses were adopted into the text, when they appeared to the scribe to render the meaning more intelligible. It should be a matter of surprise, indeed, if the Irish Biblical MSS. did not show the same variety which was found in the continental texts; and hence we may understand how weak was the cause of the polemical assailants of the Catholic faith in Ireland, when they appealed to the difference which existed between the various readings of these ancient MSS. and the modern Vulgate, as proof of the Protestantism of our fathers.<sup>114</sup> They should rather have pondered on the Catholic teaching and Catholic practices which these venerable monuments of our early Church show forth at every page, and they should not have forgotten the remarkable fact which stands forth so prominently in the early ages of our faith, that although so many texts of the Sacred Scripture have come down to us in the language of the Church, no traces can be found to justify the teaching that the Bible should, of necessity, be offered to the people in the vulgar tongue. Mr. Mason, indeed, when writing some fifty years ago on "the Irish versions of the Bible", felt the force of this reflection, but thought

<sup>113</sup> *Epp. S. Gregorii*, "Epist ad Leand.", cap. 5.

<sup>114</sup> Lynch, in his *MS. History of the Bishops of Ireland*, speaking of Dr. Edmund O'Dempsey, bishop of Leighlin in the seventeenth century, says that this distinguished man before his elevation to the episcopate composed a work entitled "Feed your Flock", in which he exposed the statement of a certain Protestant bishop, probably the bishop of Meath: "qui asserere non verebatur Evangelium Sancti Columbae manibus exscriptum et ejusdem S. Columbae religionem Bibliis et Religioni protestantium per omnia consonare". He adds that Roch Mac Geoghegan, bishop of Kildare, refuted this theory of the Protestant bishop by illustrating the copy of the Four Gospels: "quae a S. Columba exarata esse creduntur et apud Durrow in Comitatu Regis tum servata in maxima veneratione habebantur; ita ut liber ille pro religiosissimo juramento adhiberetur" (*fol.* 362).

to set it aside by stating that the Latin language was, in fact, the common language of all in those early times. I will not enquire how fully this remark of the learned writer may prove true in those countries where the standard of Rome's imperial conquest had been unfurled; but, as regards Ireland, its accuracy cannot be sustained, and, as we learn from Ven. Bede, it was not because the Latin was the common language of Ireland that the S. S. was used in that tongue, but it was because the early saints of our island, as well as those of England and Scotland, used the Bible in the Latin version, that that language became in a manner common to them all. Yet, even so, the Latin was not the language most familiar to them. One example will suffice to prove this. When the famous conference was held at Streanshall between the Irish and Saxon monks, under their respective leaders, St. Colman and St. Wilfrid, it was not the Latin language that was used by the disputants, but the Celtic and Saxon tongues,<sup>115</sup> whilst the holy Ceddi, brother of St. Ceadda, who had studied for many years under the Irish monks, acted as interpreter between the contending parties.

26. I will conclude this distursive paper by pointing out a few of the missing Biblical MSS. of our early Church, which at one time were religiously preserved by our fathers, but of which no fragments can now be found. In this city two *cumdachs* may be visited by the antiquarian, but the Gospels which they once contained, have long since disappeared. One of these shrines, known as the *Miosach*, is preserved in the Columba College; the other adorns the museum of our National Academy. This latter *cumdach* traditionally bears the name of "the Gospel of St. Molaise", the great saint who founded the monastery of Devenish in the sixth century, and to judge from the rich ornaments and the inscriptions which still remain on this beautiful shrine, it must have been held in high esteem indeed in our early Church. It is thus described from Petrie's papers by Dr. Stokes:<sup>116</sup>

"The next shrine (*cumdach*) of which Petrie gives a detailed account, is that of the *Soiscel Molaise*, or Gospel of St. Molaise. It is a metal box about five inches long and three broad; the frame is formed of brass plates overlaid with silver layers, presenting on each side varieties of intricate and beautiful ornamental designs. On the front are four compartments containing the four evangelical symbols, accompanied with the figurative and real names of the evangelists engraved in the early Irish characters; and on the back is a plate of silver. The ends are

<sup>115</sup> Bede, *Hist. Eccl.*, lib. 3, cap. 25.

<sup>116</sup> *Life of Petrie*, page 274.

ornamented with interlaced work gilt, and one contains a figure of an ancient ecclesiastic, habited, and holding a book to his breast, probably St. Molaise bearing his Gospels. All the angels are bound together and rounded with a tubular fastening of silver. The bottom has a silver plate cut into three large open compartments, in which panels of ornamental work were probably inserted; and besides there are ten smaller divisions filled with designs formed of serpents interlaced. The inscription occupies three sides of the margin, which, taken in conjunction with local tradition, confers upon the reliquary an amount of historical precision, and puts its origin and date (from the eleventh century) beyond question".

In the Irish life of St. Senanus it is said that he "went to Rome to venerate the relics of the holy apostles Peter and Paul and the other holy martyrs, and thence he went to Tours to visit St. Martin". As a pledge of friendship and communion he bore away with him "the New Testament, i.e. the holy Gospel of Jesus Christ and of the apostles"; and the life adds "that is the Gospel which St. Senan always kept at Inis-Cattery, and it was preserved there after him".<sup>117</sup> Again in the Life of St. Ailbhe, the patron of Emly, we are told that "a holy virgin, the daughter of *Mac Iair*, sent to St. Ailbhe for a scribe who would write the Four Books of the Gospel for her. The saint sent him to her, but when he had written two of the Gospels he died; then St. Ailbhe prayed that the scribe might be restored to life, and God heard his prayer".<sup>118</sup> Thus was the scribe enabled to complete his task, and we may easily imagine with what veneration these miraculous Gospels were preserved at Emly at the time that this life was penned. It is to be regretted that no trace now remains of these Gospels; but above all we must lament the loss of the rich treasure of Kildare, which is minutely described by Giraldus Cambrensis, and, to judge from his words, must have rivalled, for it could not excel, the *Book of Kells*, of which Ireland is still so justly proud. How joyous it would be to every student of Irish art if the discovery of this noble monument of our early Church should repay the researches of our antiquarians. It is thus that Giraldus writes:—

"Among all the marvels of Kildare, to my mind, none is more marvellous than the wondrous book written (at the angels' bidding, it is said) during the lifetime of the virgin herself. This book contains a concordance of the four Evangelists, according

<sup>117</sup> I am indebted to Mr. O'Looney for these extracts from the O'Curry MSS. in the Catholic University, *Vita Senani*, pag. 211.

<sup>118</sup> O'Curry MSS. "Life of St. Ailbhe", pag. 32.



to Jerome, and almost every page is enriched, with figures of divers forms, and variously brilliant with brightest colours. Here you may behold the Divine Countenance itself, imaged in awful majesty; there the Evangelists' mystic shapes, now with six wings, now with four, now with two; in one place the eagle, in another the ox; here the man's face, there the lion's, and other figures almost infinite in their variety. If you glance at them but lightly, they appear rather an unseemly blot than an elaborate tracing. But if you bend your gaze more fixedly upon them, and pierce the secrets so skilfully veiled by the artist's craft, you will discover interlacings so delicate and subtile, so finished and slender, wound together, and tied in a maze of knots so intricate, and withal so clearly traced in colours still fresh, that you are moved to attribute the entire work to the industry of angels, rather than to that of men".



ART. IV.—*On some passages in Athenaeus and Plautus.*  
By JAMES STEWART, M.A.

**A**THENAEUS and Plautus form between them an important link in the chain of European literature. They serve to connect the middle comedy of the Greeks with the comedy of modern times. They represent to us the Greek new comedy, which without them and the six dramas of Terence would be to us nearly a blank. For of this new comedy we have only fragments remaining, some of which, indeed, are found in the *Onomasticon* of Pollux, in the *Bibliotheca* of Photius, in the works of Stobaeus, a Greek writer of the fifth century, and in those of some other scholars and grammarians, but above all in the *Deipnosophists* of Athenaeus. Of this last work we shall give a brief account.

Athenaeus was a contemporary of Pollux: at least we know that Pollux lived in the time of Commodus, for he dedicated his book to him; and that Athenaeus saw Commodus riding in a chariot in the dress of Hercules, with a lion's skin at his feet, and the club of the hero in his hand. He was born at Naucratis, a Greek city, in Egypt, where Pollux also was born, and removed from Egypt to Rome; and this is nearly all we know of his life. The *Deipnosophists*, which, though not the only work he wrote, is the only work of his we have

remaining, shows abundantly how deeply versed he was in Greek literature of all kinds. The name, variously translated into English, probably means "The Learned in Cookery". It is divided into fifteen books, of which the first two and part of the third exist only in epitome. While it would be a curious book under all circumstances, its immense value to us arises from the fact that time has bereft us of so many precious productions of Attic genius. Had these existed still, Athenaeus would have held a place in Literature about equal to that of Burton, the learned author of the *Anatomy of Melancholy*, or of his contemporary Rous, the author of the *Archaeologia Attica*. As it is, there is hardly any work of antiquity more instructive than this. It is in the form of a dialogue, fashioned, as we are expressly told, after the model of Plato; and indeed it is not difficult to see that it is the *Phaedo* of Plato that has been imitated.

"Were you yourself present", says Echecrates to Phaedo, "on that day in which Socrates drank the poison in the prison, or did you hear an account of what passed from another?" "I was present myself", answers Phaedo.

"Were you yourself present", says Timocrates to Athenaeus, "at that charming party of men whom people call Deipnosophists, with which all the city rings, or did you hear an account from another?" "I was present myself", answers Athenaeus.

And so Phaedo proceeds to tell Echecrates all that passed at the death of Socrates; and Athenaeus to tell Timocrates all that passed at that famous party.

The host was Larensius, a rich and hospitable Roman, who made every body feel at his house, that, wherever he was born, Rome, for the time being, was his country, and wherever he lived in general, that then and there his host's house was his home.

Lawyers were present, orators, musicians, philosophers, poets, grammarians, and indeed the list was so long, that we are told it looked more like the roll call of an army, than a list of guests at dinner.

Each guest brought a contribution to the banquet; but it was an intellectual contribution. It was a bag full of quotations. One or two of the guests will not ask even for a piece of bread, except in verse of some kind.

"Give me a glass of wine, and please, too, the leg of a partridge", says Pamphilus of Sicily.

The feast begins, and we have quotations mostly from lost writers, and among them chiefly from the lost Greek comic

poets, connected with every dish on the table, and every thing that could any how be decently dragged in.

We are told that the number of works which Athenaeus quotes is about fifteen hundred, and the number of writers whom he cites is said to be about seven hundred, many of whom would otherwise be unknown even by name. He says himself in his eighth book,<sup>1</sup> that he had read and extracted from eight hundred plays of the middle comedy alone. His quotations from the new comedy are nearly as numerous.

Here is a rich mine of gold; extremely valuable certainly, but by no means enough to console us for our losses. These extracts give us no idea of any one play as a whole: we depend on the Latin imitations of Plautus and Terence for that.

The banqueters begin with a praise of hospitality, as the only true use of riches, and extol their host Larensius for his hospitable welcome; and immediately somebody quotes some lines from Apollodorus of Carystus, a lost poet of the new comedy, to whom Terence is indebted for the materials of two out of his six extant dramas.

1.

"Soon as you cross the threshold, you see at the door what a welcome

Waits you within from the bountiful host, when you enter his presence;

First the hall porter is cheery; the dog comes whining with pleasure,  
And while he licks your hand, a footman, without any order,  
Runs to bring you a chair; for all catch the tone of their master".

A few lines after we have on the same subject of hospitality, a quotation from Antiphanes, a poet of the middle comedy, who is said to have been the author of three hundred and sixty-five plays.

2.

"Why, by the gods, should we wish to have riches and noble possessions?

Only for this, to be able to aid our friends in their troubles,  
Sowing the seed to produce for ourselves the sweetest of harvests.  
For as to eating and drinking, all men have an equal enjoyment,  
Hunger and thirst being abated by poor fare as well as rich banquets".

Then they pass to a praise of cooks and cookery; and we have immediately a quotation from Euphron, a poet of the new comedy. It is a cook speaking of a cook:

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<sup>1</sup> Ath., *Deipn.*, viii. 3.



## 3.

"Great was my master Soterides; once long ago on a journey  
He and his prince were away many hundreds of miles from the  
ocean.

'T was in the depth of winter; yet he to his master desiring  
Served up a dish of anchovies, which made all the courtiers to wonder.

'T was done by taking a turnip, and cutting it out like an artist,  
Into the shape of the fish; then he boiled it and seasoned it deftly,  
Pouring in oil and savoury salt in careful proportion.

On that he strewed twelve grains of poppy seed, and thus he served  
it.

Welcome was this to the king, who smiling addressed the spectators:

'Good is a cook as a poet, you'll say, when you taste the anchovies'".

From Menander, the greatest poet of the new comedy, we find the following extract. It is from his play called "The Nauclerus, or Ship Captain":

## 4.

"Thee I invoke, great earth, the mother of all living mortals,  
Kind in thy gifts to thy children all, who know how to use them.  
But when a man who receiveth thy gifts, like a spendthrift consumes them,

Wasting in riot debasing the land he received from his fathers,  
Then ought he, driven from earth, to wander about on the ocean,  
Never to reach the shore till the madman comes to his senses".

Again Alexis, the comic poet, who was the instructor of Menander, and whose plays were a sort of transition from the middle to the new comedy, furnishes us with the following:

## 5.

"If a rude surgeon, who dwells in a country town, says to a patient,

'Take the first thing in the morning a plateful of broth made from barley',

Straightway we turn up our noses, and laugh at his coarse country accent.

But if the same thing he says, only calling the broth by a fine name, Then we admire him, and wonder where all this learning was picked up".

Soon follows a ridiculous quotation from Crates, a poet of the old comedy, in a play called "The Beasts", where he describes, a kind of Utopia, a country of comic perfection:

6.

"No slave of either sex shall any man have in the country.

'But shall he then have to wait on himself when worn down by old age?'

Not so; for I shall quickly arrange that all shall go smoothly.

This shall be done this way: whatever you call for shall quickly Dart from its place, and approach at your bidding, although it be lifeless.

Say for example: 'O table, come forth, and prepare for my dinner; Pour forth the wine, O Goblet'. 'But where is the cup to receive it?'

'Cup, come forth and rinse yourself. Fish, come here and be eaten'.

'Can't', says the fish, 'for as yet I am only roasted on one side'.

'Turn yourself then forthwith, and with melted butter be basted'."

Timocles, a poet of the middle comedy, but at a time when the middle comedy discussed public men and measures nearly as freely as the old, thus speaks of parasites:

7.

"Never speak ill of a parasite; none to the state is more useful.

Who is more ready than he to help a kind patron in trouble?

If you're in straits, it is he who will strain every nerve to assist you. Nor will he grudge to do aught for you, who feed and support him.

Never behind your back does he rail at you. No! he defends you, Just as he would himself. He's heartily true to his patron.

Say that for this he eats and drinks and pays not a farthing.

Yes, and why not? Such a friend is surely well worth what he costs you.

But why waste time to prove what all join with me in believing?

Honoured and loved are parasites; even Olympian victors

Gain for themselves no higher reward than a dinner for nothing.

At your cost is your parasite fed; at the state's are the victors;

What does it matter? Your table and wine are his Prytaneum".

If these be fair specimens of the fragments contained in *Athenaeus*, we cannot be far wrong in saying, that as a whole they contain a great deal of quaint epigrammatic humour, but no outline of a plot.

Here, then, we feel the compensation that the twenty-six comedies of *Plautus* and *Terence* give us. They present to us, as in a mirror, the new comedy of the Greeks. Of the middle comedy we have still remaining originals in the *Ecclesiastusae* and the *Plutus* of *Aristophanes*. *Plautus*, the elder by many years, for it was not till some years after his death that *Terence* rose to distinction, is by no means a mere copyist, but a poet of real original genius. This we know both from the testimony

of antiquity and from internal evidence. Some of his plays are said to be made up from two plays of his Greek model. We may be sure that he was as original in his *Menaechmi* as Shakespeare was in his *Comedy of Errors*. Adapting the plays of a writer in another language by no means implies a want of original ability in the adapter.

Here we may say a word, as to why, if Plautus was a writer of such original ability as we maintain he was, he copied from the Greeks at all.

It requires a poet of the calibre of Aeschylus to found an art and to bring it to perfection in his own person. This Aeschylus did in the case of Greek tragedy. What had been done before him by Thespis and others, was little more than what Plautus found done to his hand in the homely farces of the Osci in Campania. An Aeschylus or an Aristophanes might have fastened on these humble representations, and raised an original Latin comedy upon this poor ground-work; but Plautus, though a very great genius, was not an Aeschylus nor an Aristophanes.

And now, perhaps, it would be considered hardly a digression from our main subject, if we were to state briefly the position in which the Romans found themselves when Plautus began to exhibit. The third century before Christ had a gloomy commencement to this people. There had been a coalition formed between three powerful nations of Italy to overwhelm them in the third Samnite war, and this coalition was joined by a horde of Gauls from the north. An engagement took place at Sentinum. The victory at first seemed doubtful, but it declared itself in favour of the Romans, through the self-devotion of the Consul Decius, who fell, as a sacrifice for the nation, covered with wounds. This was a kind of Roman Marathon. Then comes their struggle with Tarentum and Pyrrhus, when they were very near being ruined for ever, but which, terminating in their favour, opened up all the Greek literature, and exposed all the Greek profligacy of that luxurious city. Next come the Punic wars, and with the second, the occupation by Hannibal of Italy during sixteen years. The century ended with the victory at Zama and the ultimate triumph of the Romans. So dark was the whole of this century, and indeed the whole period from the expulsion of the Tarquins, that it may be said they were fighting for their existence, and had not time to think of literature at all. This indeed has been assigned as a sufficient reason for their want of it. But after all, had not the Athenians been doing the same thing during the whole of their most illustrious century too; for their century began with the destruction of



Miletus, and advanced through Marathon and Salamis, and Plataea and the Peloponnesian War, till it ended in 404 in their overthrow and the pulling down of their walls? That the one century ended in disaster to the Athenians, and the other in victory to the Romans, does not affect the argument much. But the truth is, the Romans had not the genius of the Greeks. They seized upon the Greek literature when they found it, but if they had not found it they would probably have put little else in its place.

Plautus was born at a small village in Umbria, about the year 254, during the first Punic War, and probably began writing comedies thirty years later, or somewhere before the breaking out of the second. He continued writing for about forty years, and died at the age of seventy. He wrote probably about seventy or eighty comedies, all, as far as is known, taken from the Greek, of which the twenty best remain. At least the ancients thought them the best.

Plautus represents Greek vices in odious enough colours, and is not a flatterer of the Greeks. To call a wild young man a thorough Greek, is to bestow the hardest epithet on him in Plautus's vocabulary, and his was by no means deficient in not very flattering expletives. The Greek morality, as represented in Magna Graecia and Sicily, was very low, and no doubt Plautus did not misrepresent it. It may not be amiss to give a brief outline of the plot of one or more of his plays; and we for this purpose in the first instance, select the *Mostellaria*, or *The Haunted House*.

The scene is laid as usual at Athens. An old gentleman, called Theuropides, who is a rich merchant there, leaves home on business for Egypt, and there remains in charge of his house his son Philolaches, who has a slave of the name of Tranio to attend upon him, and another slave, Grumio, who acts as bailiff of the old gentleman's farm in the country. Tranio's influence over his young master is very bad, and the play opens with a scene between the two slaves, Grumio and Tranio, in which the former severely rebukes the latter for the part he has played in corrupting his master's son, and encouraging him to waste his master's property. "While you please, and may, drink on, dissipate my master's property, corrupt his son, who till you misled him was a most excellent young man, drink day and night, play the thorough Greek, feed parasites, make your market sumptuously, pamper yourself, your young master, and his companions, as if you were so many gods. Were these the instructions the old gentleman gave you when he went abroad? Is this the way in which he will find

his property cared for on his return? Do you think this is the part of a good servant, to ruin both the estate and the son of his master? For I cannot but think him ruined who devotes himself to such pursuits as yours. There used to be nobody in the whole of Attica more virtuous or steady than he: now he carries off the palm in quite another line. This is owing to you and your tutoring”.

All this has no effect on Tranio, and they separate, Grumio going off to his farm in the country, and Tranio going to the Piraeus to buy fish and other delicacies for a grand entertainment the young gentleman is going to give to his dissolute companions this very afternoon. Now comes in the poor youth, Philolaches himself, who soliloquises thus:

## 8.

“Deeply and long I’ve reflected what man at his birth most resembles.

Now I’ve discovered the likeness. A new-built house is his image; Soon as a house is built and finished in all things exactly, Men praise the house and the builder, and take it themselves as a model.

But when an indolent tenant betakes himself there with his offspring, Soon the house tumbles to ruin, and men blame the house and the builder.

Yet the truth was, that the wind blew strong and broke all the gutters, Down came the tiles from the roof, while the owner was careless to mend them.

Next comes a tempest of rain, which pours down the walls in a torrent.

All this time the indolent tenant will not spend a farthing, But he delays and delays till the house can no longer be mended. Just so are parents the builders of children, and rear them to manhood.

Neither pains nor cost do they spare: they grudge nothing to help them:

Long they struggle and toil to teach them the arts and refine them. Then the children go forth, and leave the hands of the builder.

Now they will soon give a token how this fair building will turn out,

For as their parents were builders, so they of the house are the tenants”.

Then he goes on to say that he was always virtuous and good so long as he was in the builders’, i.e. his parents’ hands. But then came on idleness; that was his storm of wind; this

carried away his principles of virtue: that means the tiles; the rain came in, i.e. evil principles, and sapped and corrupted his heart. He is fully conscious of his miserable condition, but feels himself powerless to resist temptation. There is much of high principle and morality in these two scenes. We suspect these come from Plautus himself, for they have more a sturdy Roman air about them than most of the rest of the play.

Now comes, after a few other scenes, not necessary for explaining the plot, Tranio, who soliloquises in a different strain. He has been to the Piraeus to buy fish, and there to his horror he sees his master, the old gentleman, just landed, who they hoped was as good as dead. He sees him with terror, for he has good reason to expect the worst punishment that could be inflicted on a slave (i.e. crucifixion). He would give anybody any thing who would only take his place for a moment.

Philolaches, his young master, sees him come up, and cries out: "Here comes the dinner; here comes Tranio; he has been at the market". Up comes Tranio out of breath and disordered. "Philolaches", he says. "What's the matter?" says Philolaches. "I have seen your father, he's arrived", says Tranio. What is to be done? His father can't come here to see the dissolute company he is entertaining. He is bad enough certainly, but any thing rather than expose his dissipation to his father. Tranio recommends them at once to remove all the signs of a dinner from the verandah in front of the house, where they then were preparing to feast, and to carry indoors their company to the back part, where no one could see them from the front, and there to carry on their festivities in quiet. All being removed, he requests that the door key, called the Lacedaemonian key, should be sent out to him. When they are all within, he says he will lock the door on the outside, and undertake to keep the old gentleman from coming in to discover his son's dissipation.

The son, who seems really sorry, goes in; but after the doors are locked inside, he sends out a young slave, to the discomposure of Tranio, to beg him at all risks to keep his father from coming into the house and discovering the real state of the case. There is something touching about the young man here. He feels his degradation. He is not wholly bad.

Tranio impatiently bids the slave go in again, and locks the door on the outside; the windows on this side the house being all very high, and all barred. He then retires into a corner to watch the arrival of Theuropides, who comes in with a soliloquy as usual. He has been nearly shipwrecked. He says:



## 9.

"Neptune, to thee I return my thanks for having preserved me. True, I have only escaped with my life, but I'm not the less thankful;

Still, if from this time forward on thy realm I plant but a footstep, Then you can do with me what you please, but I trust you no longer.

All that I mean to trust you with has been entrusted already".

"Upon my word", says Tranio to himself, "some people would have been glad if Neptune had not been so kind to you".

Theuropides goes on:

## 10.

"After three painful years, at length I return to my country.

Joy once more to see my son and all my relations;

Joy for them to see me, and to welcome me back to my homestead!"

Says Tranio to himself: "Somebody would have been more welcome—the man who came to say that you were drowned".

"How is it", says Theuropides, "that my house is barred up in the day time as if it were midnight? Let me knock at the door". So he knocks, and as nobody answers, he kicks, and this brings Tranio from his hiding place.

"Did any one touch this door?" says he. "To be sure", says Theuropides. "Why, Tranio, don't you know your old master?" "Ah! Master, is it you? Surely you did not touch this accursed door?" "Touch it! nay, I kicked at it, and have all but beaten in the panels, and why on earth is the house shut up at this hour of the day?" "Don't you know", says Tranio. "Nobody has come near this house for the last seven months since we left it. I'll tell you all the story. Just seven months ago your son had been out to a great dinner party in the city, and I had been attending him there. We came home as usual early, and had fallen asleep, when all of a sudden we were aroused with a scream". "Who screamed?" said the father. "Your son", said Tranio, "who declared that a dead man had appeared to him, and said that *he* was the inhabitant of that house, that your son must go somewhere else to dwell. He said he had been the guest of Diapontius, from whom you purchased the mansion; that by Diapontius he had been robbed and murdered, and, therefore, not having been duly buried, but only hid in a hole, he was refused admission into the region below, and in that house must he dwell".

## 11.

"Of Diapontius I was the guest; and here is my dwelling, Orcus would not receive me because I was killed prematurely. Trusting too much to my host, for the sake of gold was I murdered. Hence depart, I tell you, for all in this house is accursed".

"The horrors that occurred after this", says Tranio were such as it is impossible to conceive. Night after night there were hideous noises, clanking of chains, and rattling of doors. Human nature could not stand this long; so seven months ago my young master moved the few absolute necessities that he had here, and went to another place. He has left me here, as a slave in whom he knew you trusted, to watch the house. Here have I been for seven long months looking after your property. But I wish you had not beaten at the door".

"Why at the door?" says the old man.

"Because the ghost considers the house as his own, and any mortal who knocks at the door, he considers as his enemy".

"Hah! what was that?" said Tranio. "Oh! I see! It is nothing. I thought the ghost was coming out to punish you for your intrusion. But he will come soon".

The old gentleman becomes quite overpowered with fear, and eventually runs away, with his head covered, resolved not to come near that house for some time at all events.

Off he goes, but soon, to the consternation of Tranio, he is seen returning, and on the other side a money lender who has advanced the young Philolaches money, the interest of which he has not duly paid.

Between the two, Tranio does not know what to do. He resolves to speak to the old gentleman first. "Why have you come back so soon?" says he. "Why", says the old man, "I have seen the man from whom I bought this house". "Did you tell him", says Tranio, "what I said?" "Yes", says Theuropides. "And, of course, he confessed?" "No; he said it was all a lie". "Oh, the iniquity", says Tranio, "he murdered his guest and then denied it, adding perjury to homicide".

Then the money lender, seen as yet by Tranio alone, seems inclined to bawl out; for it was the usage then for a creditor to call out the name of his debtor before his house, as a prelude to his bringing him into court in the morning. Tranio knows hardly what to do between the two, but he gets the money lender away, by inducing the father to believe that his son has borrowed the money to purchase a house, an excellent bargain, and the father becomes responsible for the debt. But now the old gentleman wants to know where the house is, and

Tranio, at hap-hazard, fixes on the house next door, where the aged Simo lived. It is a great house, and the father is charmed with the purchase. He must go immediately and look over it.

This throws Tranio into confusion again, and he begs to be allowed just to call on the present inhabitant, Simo, to get his permission. The permission is reluctantly obtained, on Tranio's representing to Simo that his master's son is going to be married, and that the father wishes to build an addition to his own house, in consequence, of ladies' apartments, and that he wishes to take for his model the similar apartments in Simo's house, the exterior of which he admires so much. Then come the pair to visit the house; Simo welcoming Theuropides at the door, and begging him to go through the house *as if it were his own*, an expression which very nearly causes a discovery of all. Theuropides, as he goes through the house, is more and more delighted with his supposed bargain. The *dénouement* is not yet come. But it approaches. Tranio is sent for Philolaches. The father returns alone towards the haunted house. At the door he sees two slaves knocking. Then asks Theuropides why they knock? Because their young master is now at a party there with the young Philolaches. And so the whole story of the young man's riotous living comes out. Next he meets Simo, and, his suspicions now being roused, he questions him as to the purchase of the house, and he finds it a deception from beginning to end. Tranio, meanwhile, has been getting his master's convivial companions away by a back door, and then he returns to Theuropides. On finding all discovered he takes refuge at an altar. A young friend of Philolaches comes to intercede with his father for him.

"You know", he says, "that I am your son's companion; he has gone into my house, for he is ashamed to come into your presence, because he is aware that you know what he has done. Now I beseech you pardon his simplicity and youth. Whatever he has done, he has done in company with me. I am rich, and will repay you all the money he cost you".

"If he's ashamed that he has been so extravagant", says the father, "that is enough". "I am ashamed myself", answered the mediator. After this, of course, Tranio is forgiven too, and the play ends.

It is an ingenious and amusing piece of writing, and not without a good moral too. It wants unity in a certain degree. The lies are so flimsy and hang together so loosely, that we hardly see why the *dénouement* should come at this rather than at another part in the story. Had the discovery been made in Simo's house, and the forgiveness followed there, the play



would have been as complete, though not as long, as it is now. It is very ingenious, however, and the different characters are very well contrasted and help to mark each other. We see Grumio the faithful, and Tranio the rascally slave. We see Philolaches and Tranio both engaged in riotous courses; the one without a misgiving, the other with secret gnawings of conscience and remains of a better nature. The stern Simo, and the garrulous, superstitious, and easily gulled Theuropides are in their way contrasts too. These characters repeat themselves many times in the plays of Plautus. In spite of different names and different scopes, there is a monotony about his plays that should be accounted for. This monotony is not found in the modern stage, or at least in the better parts of it. In Shakespere's comedy it is not found. In the early Greek comedy it was not found. Why here?

The reason is, that this comedy, being a representation of common life, was monotonous, because the common or social life of the Greeks at this period was monotonous. The refined and virtuous ladies of Greece were at this time secluded pretty much as the Turkish ladies are now. That is enough to account for the low state of morals among the men, and for the consequent monotony of existence; for monotony does follow low principles of action. As to the early Greek comedy, its aim was chiefly political and satirical, and was not intended to represent ordinary life; while, in the case of tragedy, the subjects were taken from primitive times, when the condition of the female sex was something quite different, and higher than it had now become.

We should not expect in comedy to find the noble character of Antigone, who shows almost the dignity of a Christian martyr in resisting to death the unjust decree of Creon, which consigned her brother to lie unburied, to dogs and birds a prey.

12.

*Creon.* "Didst thou then dare to break the law thy king had enacted?"

*Antigone.* "Yes, for it came not from Zeus, who rules the gods on Olympus,

Nor yet from those who below are the upright judges of mortals.

Nor did I think that your decrees had such jurisdiction

As to annul by a mortal's command the laws of the Eternal.

These are not laws which are heard of to-day, and to-morrow forgotten;

No! they have ever existed, and none knows their end or beginning. Surely, I was not then likely, through fear of the frown of a mortal, Basely the risk to incur of offending a power everlasting.

That I should die, I knew; and that without your appointment. If I die sooner, I count it a gain, for those who in evils Live all their lives, think little of death, which ends their afflictions. So without any regret I embrace the fate that awaits me. But had I suffered the body of him who, with me, of one father And of one mother was born, to lie on the highway unburied, Then, indeed, I'd have grieved; but now I die full of contentment".

Had Greek society been different, we might have found in the representation of it, not indeed an *Antigone*, who is essentially tragic, but characters like the affectionate and irresolute *Ismene*, the sister of *Antigone*; like Shakespeare's *Portia*, so dignified, sweet, and tender; like the noble and heroic *Isabella*, whose beautiful sayings have many of them become proverbial; like the witty, gay, and intellectual *Beatrice*; like the sprightly, soft, and genial *Rosalind*; or even like *Juliet*, perhaps the most finished of Shakespeare's portraits, the heroine indeed of a tragedy, but one who under happier circumstances might have graced a comedy as well; or like the exquisite *Helena*, who redeems a situation otherwise low and debasing, by her own innate nobility of soul.

We have a very worthless imitation of the *Mostellaria* by Addison, who calls his play *The Drummer, or the Haunted House*. There is a man hidden behind the panels in the dress of a drummer, who is thought to be the ghost of the former owner of the mansion, but who is really an aspirant to the hand of the widow, and wishes, by unexpected apparitions and muffled performances on his drum, to frighten a rival out of the house.

The *Menaechmi* is the original of Shakespeare's *Comedy of Errors*. Two twin brothers are so like that their own mother cannot tell the one from the other. They are born at Syracuse. Their father goes to Tarentum on business as a merchant. He takes one of them with him and loses him in a crowd. The father dies of grief. A rich man finds the crying child, and takes him home with him to Epidamnus in Illyria, where he eventually succeeds to his adoptive father's property, and becomes rich in his turn. The other twin, when both are grown up, sets out on his travels to find his brother, and at last arrives at Epidamnus. Their amazing likeness still remains. The wife even of the Epidamnian does not know her husband from his brother, and an amusing succession of laughable incidents occurs.

A very marked character here is the parasite, who tells he is nick-named *Peniculus*, or sponge, because he leaves his dish behind him at dinner as clean as a sponge could have washed it. He begins the play.

13.

"All the young men call me sponge, because whenever I dine out, Clean is my dish always left, no cleaner a sponge could have made it.

Foolish are they who bind captives with chains and put fetters on prisoners,

For when a man is unhappy, bad treatment only increases, Till he cannot resist, his ardent desire of escaping.

But if you really wish to keep a man safe and securely, Then not with fetters and chains, but with meat and drink you must bind him.

If to a plentiful table you fasten him, guard him you need not, For he won't fly, even though his conscience with crimes should upbraid him.

Supple, indeed, are the chains of good dinners given without stinting,

For, let me tell you, the tighter they bind, the more loosely you tie them.

Now I am going to Menaechmus, that he may bind me in this way. He is of hosts the most hearty; his dinners are frequent and sumptuous.

Piled on the table the dishes are, one just over the other, And you must stand on the sofa to see what the topmost has in it".

At that moment comes out Menaechmus, scolding his wife. and telling her he won't have her always prying about his proceedings out of doors, nor will he inform her whether he is going to return to dinner or not.

The parasite is shocked, not at the matrimonial quarrel, but because he is looking out for a dinner, and if Menaechmus goes out to dine, his hopes in that quarter seem likely to come to nothing. Menaechmus goes out, with a cloak of his wife's under his own, and off he walks at a smart pace. Now or never more, that day at any rate, must the parasite procure his dinner. He throws himself in his patron's way, and persuades him to ask him to dine in the open air in a public garden, sending a slave called *Cylindrus* for the materials. The patron and parasite go off to the law courts till dinner time, and the coast is clear. Enter now the other Menaechmus, the Syracusan, with his slave, *Messenio*. *Messenio*, in a long conversation, warns his master of the temptations in *Epidamnus*, and offers to take care of his purse for him, which is given him. He then departs, and leaves the Syracusan alone. At this moment up comes *Cylindrus*, who has been despatched for provisions. He, of course, mistakes the stranger for his master, and a scene of confusion follows. At length the Syracusan allows himself to be



persuaded, and he sits down to the dinner and drinks the wine provided for the other, and then departs with a chaplet of flowers round his head. The real Menaechmus has been detained all this time at the courts of law. He returns and asks for his dinner, which he is told he has already eaten. The confusion thickens. The wife meets the Syracusan, and, thinking him her husband, charges him with stealing her cloak. He denies all knowledge of her. Her old father is summoned, who recommends her to submit to her supposed husband. To get away, the Syracusan pretends to be mad. The old man goes for a physician, and in the temporary absence of both, the Syracusan takes to flight. His brother of Epidamnus comes up to the house, which is his own. He is accused of being mad by his wife and father-in-law, now returned, and he is told of and reproached with all the mad actions his twin brother has been guilty of. This puts him really frantic with rage. Four keepers are brought to carry him off to an asylum. He calls on the citizens of Epidamnus to aid him. At this moment Messenio, his brother's slave, comes up, and mistakes him for his master. "Whoever you are, help me", was the exclamation of Menaechmus. And he does so effectually, for the men's eyes are nearly gouged out, and they all take to flight. "What can I do for you?" says the Syracusan. "Set me free from my slavery". "I cannot do that, because I am not your master; however, as free as I can make you, you are". This satisfies Messenio, who departs, saying he would bring him back his purse safe and sound, and Menaechmus, the Epidamnian, soliloquises:

## 14

"Wonderful things this day have I seen, past my understanding.  
Some say I am not myself, and from my own house they exclude me,  
While this slave, not a moment ago, owned me for his master,  
Promising also to bring me my purse, which I ne'er to him trusted;  
But if he bring me that safe, he shall go from me free on the instant;  
Lest when he comes to his senses, he force me the purse to restore  
him.

Next my wife's father, and doctor, declare me a stark raving mad-  
man.

These things must all be dreams, and I am walking in dreamland.

Next the two brothers meet together, and the *dénouement* takes place.

Now Shakespere's play of the *Comedy of Errors* is certainly no more his own than the *Menaechmi* belongs to Plautus. He made it his own, and it was his own to a certain extent, though he

owed to Plautus nearly all the plot. The chief difference between his play and that of Plautus is, that there are not only in Shakespere two Menaechmi, but there are two slaves, one belonging to each master, and as like to each other as their masters are. The two Menaechmi are, in Shakespere, the two Antipholuses; the slaves are the two Dromios. It, of course, complicates the plot more to have two slaves exactly alike. But it does not require much of a master's hand to bring this secondary plot into action; and yet Shakespere's *Comedy of Errors*, though founded on this play of Plautus, is not a servile imitation of it, just as we believe the plays of Plautus, though taken in the same way from the Greek, are not servile imitations of these comedies.

We shall quote some lines of Shakespere here, which, we think, bear some resemblance, at least, to those we last translated from Plautus. Antipholus is Menaechmus.

“Now out of doubt Antipholus is mad,  
Else would he never so demean himself.  
A ring he hath of mine worth forty ducats,  
And for the same he promised me a chain.  
Both one and the other he denies me now.  
The reason is, I gather he is mad.  
Besides this present instance of his rage,  
Is a mad tale he told to-day at dinner  
Of his own doors being shut against his entrance.  
Belike his wife, acquainted with his fits,  
On purpose shut the doors against his way.  
My way is now to hie home to his house,  
And tell his wife that, being a lunatic,  
He rushed into my house and took perforce  
My ring away. This course I fittest choose,  
For forty ducats are too much to lose”.

If we had room we might speak of the *Aulularia*, from which Moliere draws his play of *l'Avare*. He also, with a master hand, makes his own, ideas which he in the first instance borrowed from another.

We next come to a play called *The Poor Carthaginian*, which is remarkable for containing the only remains of the Carthaginian language we have existing.

Hanno makes a short speech in this his native tongue, which is followed by ten Latin lines, supposed to be a translation by Plautus of a portion of the speech at all events. Hanno is a Carthaginian, who has had two daughters stolen from him in their infancy and made slaves of, and he has come in search of them to Calydon, a city in Aetolia, where the scene of the play

is laid. He says in Punic, if the Latin lines of Plautus be really a translation:—

## 15.

“Ye gods and goddesses all, who protect this Aetolian city,  
Send me your aid my daughters to find, long lost and lamented,  
Who from their father were stolen, just as his son from my  
cousin.

Here in former times an old friend of mine had his dwelling;  
But he has paid that debt which all pay sooner or later.  
I to his son Agorastocles bear this token of friendship,  
Who I believe lives here, where lived his father before him;  
But, to make sure, I ’ll inquire of those I see coming to meet me”.

Perhaps some day or other some great philologist may arise to reconstruct this Punic language, or at least to discover its grammatical principles from these scanty materials. This would, however, be more difficult than deciphering hieroglyphics from the information given us by the Rosetta stone, because, here there is abundance of hieroglyphics to test our theory, but of the Punic language we have no remains, except these lines and a few fragmentary expressions in this play. It is, of course, possible that some others may turn up hereafter.

The *Miles Gloriosus*, or *Braggadocio Captain*, is the original Bombastes Furioso. His name is Pyrgopolinices, the conqueror of towers and of cities. He comes on the stage, followed by a guard of soldiers. whom he addresses:

## 16.

“Mind that my shield must be brighter than ever the rays of the  
sun were,

That in the battle-field it may dazzle the eyes of beholders.

Oh, my good sword! don’t lament or be desponding in spirit,

For that against your will some days you have slept in your scab-  
bard,

You who I know are impatient to draw the hearts’ blood of the  
foemen.

The Latin, then, is a picture of the middle and new comedy of the Greeks, which arose partly by the natural course of events from the earlier comedy, and partly from the tragedies of Euripides, which for the first time attempted to represent on the stage the life of ordinary men, as distinguished from that of the heroic ages. It is witty, lively, sparkling, but deficient in softness from the absence of refined female characters, and, for the same reason, the tone of morality is generally, though by no means always low. In this respect, indeed,



the stage is not a whit purer now than in those ancient times. Christians, while condemning the pagan writers of antiquity, often imitate their vices. But while such plays as now disfigure the stage are forgotten when they have served their temporary purpose, we have in our glorious Shakespere, one writer who will last as long as the English language lasts; one whose very name is a bond of sympathy which ought to unite all who speak the tongue in which he wrote, and in whose glorious crown there is no brighter jewel than his exquisite pictures of female purity and female refinement.

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ART. V.—*The Writings of Seneca considered with reference to Literature.* By ROBERT ORNSBY, M.A.

IN contrasting classical with modern or romantic literature, it is a familiar criticism, that the modern taste is chiefly exhibited in the matter, ancient taste in the form; that the one exhibits nature in her variety, the other in her unity; the one is like a forest in all its wild original luxuriance, with interlacing foliage, brushwood, and brake; the other like the same forest, as it presents itself to the eye of science, with its manifold products reduced to order, and distributed according to their exact genera and species. Hence the ancients would please us by their symmetry, the moderns by their rich abundance. From a play of Sophocles you gain a single idea, clear, brilliant, and cold as a statue of Phidias or Polyclethus. From a play of Shakespere's, you gain an out-pouring of ideas, metaphors, and similes, as various, as beautiful, and as grotesque as the stained glass or the fretted mouldings of a Gothic cathedral.

This comparison may serve to illustrate the difference between the style of Seneca the philosopher, and that of most of the other classical writers among whom he is incongruously placed, for to no author could the theory of the classical type, which has been stated above, be less correctly applied. In his works, form has been sacrificed to matter, and the proportions of the whole have been regarded as of no account compared with the depth and copiousness of the thoughts, and the richness of the ornaments with which they are illustrated, and often over-loaded. In a literary point of view, he may be called the transition from Cicero to Tertullian or St. Augustine; one might imagine him,

had he been a Christian, becoming a Father of the Church. There is a kindred flow of ideas, an accumulation of striking conceptions, set off, not by an orderly style and arrangement, but by an inexhaustible profusion of antithesis and amplification.

Seneca is, in fact, much more a modern than an ancient writer, and has the faults as well as the merits which belong to highly civilized times and complicated states of society. It is true that civilization, in some respects, tends to simplicity, and that barbarism delights in display and intricacy. This rule, however, does not hold in all stages of progress. The English were more civilized in the times of the Stuarts than they were in those of Elizabeth, and yet the most admired poet of the Stuart times, at least of the Stuart party, was Cowley, whose extravagant taste in poetry contrasts very unfavourably with Spenser and the great dramatists of the Elizabethan era. So, some critics of the Flavian period regarded even Cicero as meagre and dry; whilst Seneca himself was exceeded by a set of imitators who followed his manner even in the very points where they ought to have avoided it. I proceed to examine, in detail, these characteristics of Seneca, and then to consider the material excellence with which his writings repay the reader, notwithstanding the literary objections to which they are so obviously open.

In the first place, Seneca, as compared with the authors of the golden period, so-called, of Latinity, writes in almost a new dialect. Not merely had the requirements of philosophy or luxury introduced either verbal loans from the Greek, or modifications of the Latin, but the provinces had largely contributed their quota of change to the rapidly altering language. It had become more flexible, more colloquial, and admits more readily of translation into modern idioms. We are reminded of a similar alteration in the French literature of the present day, compared with that of the epoch of Louis the Fourteenth. The slang of a revolutionary period, the influx of the lower classes into the higher, increased intercourse with England, has brought in new words; but the whole construction of the language has also been sensibly changed. What Lacordaire is to Bossuet, what a modern French novel is to the romances of Scudéri, Seneca is to Cicero, or Juvenal and Petronius to Plautus and Terence. The books *De Bello Hispaniensi*, forming part of the collection which goes under the name of Cæsar, are an early instance of this process, evidently written, as Niebuhr has observed, by some person not belonging to good society, in the language of the camp.<sup>1</sup> The harmonious

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<sup>1</sup> Niebuhr's *Lectures on Roman History*, vol. iii., p. 41 (Chepmell and Demmler's translation).

period, which diffuses such indescribable grace and symmetry over Cicero's works, and which, as has been truly said, is so simply a creation of art, that even were it wholly abstracted from the matter, it might still be heard with pleasure, like a musical composition of the noblest kind,<sup>2</sup> has in Seneca wholly disappeared, and given place to an accumulation of short, unconnected sentences, written apparently on the principle that every one of them must strike the reader as a new thought, or at least as placing some well-known maxim in a new aspect. Such a writer naturally seems greater in detached passages than he does upon a view of any of his compositions as a whole. Cicero, on the contrary, was an artist great enough to know that, whilst no part of a work must be negligently executed, all parts ought not to be equally brilliant. The eye should not be fatigued by too much glitter in the details, but relieved by large spaces of matter, which, considered by themselves, may perhaps be tame, but which are necessary to give to the more shining parts their proper effect.

The separate sentences in Seneca, moreover, are not so much parts of a connected chain of reasoning, as the forcible expression of the practical ideas of a man of the world upon human affairs. They are rather maxims placed before one individual mind for its guidance, than truths resulting from scientific investigation. It may be interesting to illustrate this by a comparison of sentences taken almost at random out of Aristotle's *Ethics*, with common-places derived from the writings of Seneca. As examples of the former, take the following:—

(1.) It must not be supposed that because things are pleasurable to persons badly disposed, they are pleasurable in themselves; any more than things which seem bitter or sweet to the diseased palate, or things which seem white to the eye afflicted with ophthalmia, are so in reality.

(2.) It is impossible to feel the pleasure of the just man, without being just, or the pleasure of the accomplished musician, without being one.

(3.) No one would choose to live, retaining the intellectual conditions of a child throughout his life, and taking as much pleasure as possible in the things which delight children, or to delight in doing anything that is most disgraceful, even though he were never to suffer pain; and there are many things we would take an earnest interest about, even though they produced no pleasure; for instance, seeing, remembering, knowing, having virtuous habits.

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<sup>2</sup> The thought, I believe, is Dr. Newman's.



(4.) That which all people think, we generally say, is true; and he who does away with this argument, is not likely himself to state anything more convincing.

(5.) It is the part of an educated man to look for exactness in each particular subject, just so far as, and no further than, the nature of the subject admits of.

(6.) The young man is not a fit auditor of moral philosophy, for he is inexperienced in the affairs of life, and the reasonings of the science are derived from them, and engaged about them.

(7.) Punishments are correctives, and correctives go by contraries.

(8.) Virtue is more exact than any art.

(9.) We deliberate, not about ends, but about means to ends.

(10.) Pleasure, in the actions of the virtuous, is not always felt, except as one approximates to the end.<sup>3</sup>

Passages like these are obviously either the first principles, or the accurate conclusions of a close thinker, as completely parts of a whole as the inscription Phidias is said to have fastened indissolubly on his statue of Minerva. We may indeed detach them for our own purposes, but they belong essentially to the system of argument out of which they have been evolved, and cannot, properly speaking, be comprehended by those who have not gone through it. To make a selection of "thoughts" out of Aristotle, would be like making a selection of thoughts out of Euclid. But Seneca, more than any other writer, would provide the fit materials for such a compilation. This will be perceived on glancing at the following collection of sentences from him, contrasted with what I have already given from the *Ethics*.

(1.) To be always fortunate, and to pass through life without sustaining any bitings of the mind, is to be ignorant of one side of the nature of things.

(2.) You are much mistaken if you think any one excepted from the law of change. To that person, so long prosperous, his turn will arrive. Whoever seems to be *pardoned*, is only *reprieved*.

(3.) If you think any one your friend, whom you do not trust as much as you do yourself, you are very much mistaken.

(4.) Whatever raises the mind does good to the body also.

(5.) Is it likely that some evil will befall you? It is *certain* that it has not befallen you yet. How many things have come which were not expected! How many things which were expected have never appeared! Even if it is to come, where

<sup>3</sup> Eth. Nicom., x. 2, i. 1, ii. 2, 5, iii. 5, 12.

is the good of going out to meet your sorrow? It will suffice to lament it when it has actually arrived, and meanwhile promise yourself some better fate. What do you gain by this? You gain so much *time*. Many things will intervene, by which the approaching danger may either stop short, or cease, or pass over upon another head.

(6.) In the midst of prosperity, occasionally adopt, for a few days, coarse clothing, cheap food, and little of it, and say: "This is what I was afraid of".

(7.) There are very few who govern themselves and their affairs by any fixed purpose. The rest proceed just like objects floating on a stream, they are borne along, they do not go. Of these, some are detained, or lightly carried by a small undulation; others are hurried on by a more violent wave; others are lodged on the banks by the languid rippling of the waves; and others are borne onward to the sea by the rushing eddies. We ought therefore to avoid such examples, and make up our minds as to what we really intend, and persevere in it.

(8.) What may happen any day, may happen to-day.

(9.) No one [who improved a little, and then stopped short] ever found his improvement where he left it.

(10.) To fools and those who rely upon fortune, everything is new and unexpected.

(11.) Nothing is done well, unless the whole mind has been applied to it, and has gone along with it throughout, without any resistance in any part of the soul.

(12.) The first and greatest punishment of sinners is that they have sinned. Nor does any crime, however fortune may adorn it with her gifts, however she may defend or maintain it, go unpunished, because in crime itself consists the punishment of crime.

(13.) Ingratitude enters into almost every great crime.

(14.) Call not our discoveries our own. The seeds of all arts have been sown in our minds, and God, our great Master, brings forth talents from hidden recesses.<sup>4</sup>

Now, of almost all these sentences I think it is equally clear, that they do not form parts of a whole. They are the shrewd remarks of an able man, who saw more at a first glance than most can, but who had not the time or inclination to build his ideas into a great intellectual structure. It is the same with

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<sup>4</sup> *Dial.* i. 4. *Ep.* i. 3; x. 2; ii. 1, 18; iii. 2.; vii. 2; viii. 2; ix. 5; xi. 3; xvi. 2. *De Ben.* i. 10; iv. 6 (Ed. Teubner). The last quotation was happily chosen for the title-page of the catalogue of the Great London Exhibition of 1851.

his metaphors and illustrations. In reasoning upon moral philosophy, these are not only an ornament to a difficult subject, but greatly assist the comprehension of the argument. They ought in fact, in an ethical treatise, to be themselves arguments, that is to say, reasonings in the form of example or analogy. Thus Aristotle, in developing his doctrine of the middle point between excess and defect in morals, not so much with reference to the matter of the action itself, as with reference to ourselves, illustrates his principles by the examples of diet in the case of training. It does not follow, he says, that if ten pounds are too much, and two pounds too little, the numerical mean between, viz., six pounds, will be prescribed by the trainer. It would vary with the constitution, for six pounds may be too little for one man and too much for another. The real mean is that which is properly apportioned to the system at the time. Now this illustration is at once an argument and an ornament. It is an ornament, because it relieves the tedium of a dry disquisition, and it is an argument, because, as every one knows, there is a real analogy between the laws of the mind and those of the body. Seneca's illustrations are frequently of a very different kind from this, and do not so much grow out of the subject as are laid upon it—admirable indeed for their ingenuity and abundance—impressive, as setting forth solemn lessons in a manner that arrests the imagination or fancy, but still, after all, rhetorical rather than philosophical. This will be evident on looking over a few specimens. He compares pleasures to a class of Egyptian banditti, who seem to have murdered their victims pretty much in the style of our garrotte-robbers, or of the Thugs in India. "Above all things", he says, "clear away pleasures from your soul, and regard them with as much detestation as you would the robbers whom the Egyptians call Philetæ. They embrace us, but it is to strangle us".<sup>5</sup>

In another place, where he recapitulates the minute, hair-splitting syllogisms by which the Stoics attempted to prove that death was no evil, for instance—"Nothing glorious is evil; death may be glorious; death is no evil"; although of the same sect, he laughs at the notion that the fear of death could be subdued by such sharp and slender weapons as these, however unanswerable they might be; and compares it to the huge serpent which was met by the army of Regulus in Africa, and which, after in vain trying to kill with their arrows and slings, they at last had to crush by means of the engines they would have used to knock down a tower.<sup>6</sup> Frequently he crowds

<sup>5</sup> *Ep.* v. 11.<sup>6</sup> *Ep.* xi. 3.



similes together, hammering them in one after another, caring little how they will match, provided only that separately they are shining. I will quote, for instance, the following passage from one of his letters, in reply, apparently, to complaints his correspondent had made about some calamities that had befallen him:—"None of all these things", replies Seneca, "is unusual; none of them is what you might not have expected. To be annoyed by these things is as absurd as to complain of getting splashed in the streets. The condition in which we live is precisely that of going to the public baths (which, in Rome, seem to have been often very badly managed), of mingling in a crowd, of going on a journey. Sometimes one's vexations will abate for a while; they will come on again". A moral philosopher has certainly a perfect right to use this illustration, because man and man's life are all of a piece, and the general character of the whole may well be explained by reference to any particular transaction. But Seneca cannot refrain, as he proceeds, from magnifying it into the following declamation:—

"It is no delicate affair, to be alive. You have entered on a long road, and you must needs slip, and run against stones, and get wearied, and say, 'O death, you are always deceiving my hope!' In one place you will have to leave a companion behind you; in another you will have to bury him; in another you will have to be afraid of him. Through difficulties like these you will have to measure out this rugged journey. The soul desires death; but let it be prepared against all things. Let it know that it has come where the thunders roll and the lightnings flash. Let it know that it has come where

*Luctus et ultrices posuere cubilia curae,  
Pallentesque habitant morbi, tristisque senectus.*<sup>7</sup>

With comrades like these life must be spent. You cannot escape these things; you may despise them".<sup>8</sup>

After again describing, with much energy, the endless variations, the ups and downs of life, he draws another topic of Stoic consolation from the general law of mutability which all nature exhibits:—

"The winter brings its cold; we must be chill. The summer brings back its heats; we must be hot. The atmosphere is insalubrious; we must be sick. A wild beast will meet us here; there, a man more dangerous than any wild beast. One life will be lost by water, another by fire. We cannot change this condition of things. But we can assume a great soul, and one worthy of a good man, by which we bravely suffer the accidents of fortune, and act in harmony with nature".<sup>9</sup>

<sup>7</sup> Virg. *Æn.* VI. 274.

<sup>8</sup> *Ep.* xviii. 4.

<sup>9</sup> *Ibid.*

So far, he has stated principles of Stoic morality (for a criticism on which I may refer to a former article), in a style that is Seneca, I had almost said Carlyle, all over. But observe once more how he attempts to make his rhetorical rocket throw off a fresh shower. The reader has already more than sufficiently caught his idea, but he must put it, not into new shapes, but into new words:

"Nature governs this realm of hers, which you behold, by changes. Mild weather succeeds to cloudy. The seas are agitated after they have been in repose. The winds blow from alternate quarters. Day follows night. A part of the heavens rises, another is submerged. Eternity is made up of the contrarieties of things. To this law must our mind be adapted; this it must follow, this it must obey: and whatever things take place, it must believe ought to take place, and not quarrel with nature. It is best to bear what you cannot amend, and without a murmur to follow God, from whom all things originate. He is a bad soldier who follows his captain with groans. Let us then receive our orders with spirit and alacrity, and not quit the course of this most beautiful work, in which is interwoven all we have to suffer; and let us address Jupiter, by whose pilotage this whole mass is directed, in the manner in which Cleanthes addresses him in those eloquent lines", etc.<sup>10</sup>

Lord Byron has said: "I will show more *imagery* in twenty lines of Pope than in any equal length of quotation in English poetry, and that in places where they least expect it".<sup>11</sup> He verifies this criticism by an analysis of each line in a well known passage. If we subject Seneca to a similar process, we find him here, in one short letter, introducing the seasons, the wild beasts of the desert, the robbers, the sea, the sky, the air, and, descending again to the surface, the commander of an army, and the captain of a ship. If we cannot always praise him for the art with which he combines his colours, we must at least admit that they are brilliant and varied. Even where his argument really demands illustrations, he cannot resist decorating them as much as possible. Thus, in one of his letters, where he endeavours to prove that man's real good consists in the perfection of his reason, and not in any external advantages, he says:

"A ship is called good, not for being expensively painted, or for having its prow adorned with gold and silver, or its figure-head carved in ivory, or for being laden with royal treasures; but for being strong and firm, without any leaks, able to resist the dashing of the waves, obedient to the helm, swift, and not feeling the

<sup>10</sup> Ibid.<sup>11</sup> Moore's *Life and Letters of Byron*, ch. xliii.

wind. You call a sword good, not for having a gilded hilt or a jewelled scabbard, but for having a keen edge and a sharp point. You do not ask how handsome a ruler is, but how straight. A thing is praised for what is peculiarly its own. It is therefore nothing to the purpose to say of a man how much land he is possessed of, how much money he has out at interest, by how many he is saluted, on how precious a couch he reclines, or out of how transparent a crystal he drinks; but how good he is. And he is good, if his reason is explicit, and right, and adapted to the will of his nature. This is virtue. This, the *honestum*, and man's only good.<sup>12</sup>

This extravagant adornment of a single idea continually reminds us of the ambitious poet in Horace.<sup>13</sup>

Qui variare cupit rem prodigialiter unam.

Occasionally, in his eagerness to say something original, Seneca descends into frigid absurdity, as for example in one passage, which Laharpe has not failed to lay hold of, where he is speaking of the advantage of old age as the crowning point of the human career, as an experience to which we ought to attain, in order to complete our idea of human life; he compares it to the final draught which finishes the process of intoxication, and which he pronounces to be more charming than all which preceded it!<sup>14</sup>

Viewing Seneca as a reasoner, if one takes any treatise of his as a whole, and reads it through, one will perceive that sense of indistinctness which belongs to works deficient in logical order and method. You want to study, to find as it were some hard file at which the intellect can bite, but you lay aside the book without having been led to conclusions by a careful process of argumentation, though you have been *struck* by particular passages, and have gained many masterly hints and weighty sayings. The merit and the defect arise alike from two causes, one depending on the style of the age in which Seneca's mind had been framed, the other on the special object he had in view and the character which led him to fix on that object. The age was essentially rhetorical, or rather it had a violent tendency to that branch of rhetoric which belongs to display. In deliberative oratory there is the less need for splendour of diction, as the matters discussed are of themselves of such importance that they command attention without any adventitious attractions. A

<sup>12</sup> *Ep.* ix. 5.

<sup>13</sup> *Ep. ad Pis.* 29.

<sup>14</sup> *Ep.* i. 12. Laharpe, *Cours de Littérature*, t. iii. 2e partie, p. 234 (Paris, an. vii).



speech in the Athenian *ecclesia* or Roman senate, like a speech in the British parliament, was a matter of business, and the audience could not have their time wasted by any efforts on the part of the speakers to aim at grand eloquence. There are, indeed, speakers who are listened to for their brilliance, but they are insignificant, compared with the practical public men, whose words are actions. When, however, the supreme power is transferred from public assemblies to the hands of an individual, deliberative oratory vanishes, and with it, the rhetoric which consists in powerful reasoning, rather than in gaudy display.

It might be expected that the courts of justice would have still furnished a field for true eloquence, but at Rome the loss of freedom seems to have caused an equal, though a different kind of degeneracy even in that department. There, it became cramped and enfeebled. In education, it assumed a diseased luxuriance, partly caused by the immense influx of immigrants from Greece and Asia at that epoch, and the consequent deterioration of Roman education, which was chiefly in the hands of slaves from those countries. The taste which they encouraged in the schools fell in with, and increased the tendencies of society to ingenious rather than profound reasoning, to an affected originality rather than to purity of style. Literature of every kind suffered in this way.

Seneca was eminently the creature of his age. To the profession of rhetoric his family were originally indebted for their extraordinary career; and amidst all the splendour of his rank, as prætor, or consul, or prime minister, he retained the intellectual character with which he had commenced. Being rhetorical in temperament, he delighted in treating subjects in the method best adapted to his special talents. He found the Stoical philosophy divided into two departments—the dogmatic and the parænetic, the former of which treated of the definitions and principles of the sect, and of the conclusions they drew from them; the latter, which we may call in English the hortatory department, was of a popular kind, setting forth their views in a manner likely to strike people in general, attacking wealth and luxury, representing in magnificent terms the beauty of virtue, and the freedom and greatness of the ideal sage. Seneca almost entirely devoted himself to this latter province. With a view to sacred eloquence, his writings would indeed repay study, in some respects more than those masterpieces of Roman and Attic eloquence, which, as works of art, are so far above him; because, with all his exaggeration and redundancy, the purpose of Seneca bears a great analogy to that of the pulpit orator. He is engaged in exhorting people,

in urging them to attempt a higher life than their present one, in shaming them for their vices and feebleness, and reminding them of the shortness of time, and the magnitude of the work before them.

So completely does this idea of exhortation pervade the writings of Seneca, that one hardly knows how to select specimens of it. Perhaps the valuable treatise on *Benefits* might afford examples most in point, because it is one of those which approach most nearly to the dogmatic form, and in which Seneca notwithstanding constantly adopts the style so characteristic of himself. This work is a regular discussion of the subject of liberality, divided into seven books, the first four treating of the two general heads—how to give and how to receive a benefit. He defines a benefit to be, “a benevolent action, which imparts joy, and by imparting receives it, readily inclined, and of its own free will prepared, to do what it does”. He calls in the principles of the Stoic philosophy to elucidate this definition. The Stoics made a distinction of things into good and bad, which they regarded as co-extensive and identical with virtuous and vicious, and things neither good nor bad, in which they included all things external, like riches and their opposite. Now the *matter* of a benefit consists in these external things, and is therefore, on the Stoical theory, neither good nor bad; one thousand pounds and a farthing being alike worthless, if compared with that which is alone really good, viz., virtue and virtuous actions. But the benefit itself, as distinguished from its matter, is a virtuous *action*, and really good. A gift, Seneca would say, “is doing a good, but the thing given is neither good nor evil. It is the soul which exalts little things, casts a ray of glory over things paltry, and degrades what the world reckons of high account”.<sup>15</sup>

He goes on to consider what benefits we are to give, and to whom. He classes them into things necessary, useful, and agreeable. Things necessary are of three kinds—those without which we cannot live, those without which we ought not to live, and those without which we do not wish to live. Gifts of the agreeable kind must be opportune, or uncommon, or what few have, or few at the present time, or which are precious at this particular moment; they should be such as will often meet the eye of the receiver, and be adapted to his position and pursuits; they should be lasting, and the more so because it is not permitted to the giver to remind the receiver of his gift; they must be what you have not given to any one.

else, or at least each person whom you benefit must have something to make the kindness peculiarly his own; finally, they must be regulated by prudence, and not given with that reckless profusion which neither earns nor can claim the gratitude of the recipient.

He inquires at large into the causes why people meet with ingratitude when they have only themselves to blame for it. These causes are five: careless choice of the objects of kindness; the claiming a return, which ought always to be voluntary; hesitation, delay, and ill-grace in granting the benefit; mistake as to the principle of doing a kindness, which should never be done with the notion of receiving a return, or for any purpose beyond the kindness itself. If you gave for the sake of giving, the object of your gift was secured at the moment of giving, and therefore cannot be lost. Lastly, despairing too soon of gratitude, which often appears after a long time, and when you least expect it.

The later books are devoted to a great variety of questions, difficulties, and objections, connected with the theory and practice of liberality, many of them of a subtle and scholastic description: for instance—can a man confer a benefit upon himself? Is it true to say that no men are ungrateful? In what cases is a benefit conferred on one individual to be considered as given to several? Do we owe any gratitude for a benefit given unwillingly or ignorantly? Of course, the relations of the Stoical sage with ordinary mortals furnish a host of knotty points, and which will at least supply a great deal of amusement to any one who has the leisure to study them. This treatise, as I have already said, is by far the most regular and systematic of all the works of Seneca; and yet even this is hortatory throughout. I will give one example, which is not only a good specimen of Seneca's style, but places his character in a pleasing light. This view makes the gift to consist in the intention: "As far as the giver is concerned, it is complete when given; one must, therefore, never be deterred from giving by meeting with ingratitude". Let us now see how he throws his philosophical principle into the form of exhortation:

"The reckoning of benefits is very simple: Bestow so much—if the other party makes any return, it is a gain; if not, it is no loss. I gave in order to give. Nobody writes down in his pocket-book the kindnesses he has conferred, or, like an avaricious dun, summons his creditors to the day and the hour. A good man never thinks of these, unless reminded by a requital. Whatever the result of former benefits, persevere in conferring



them. Some time or other the ungrateful will learn gratitude, whether from a sense of shame, or by a good opportunity, or the natural principle of imitation. Do not cease to give; fulfil your work, and follow out the character of a good man. Help this man with your substance, that with your credit, a third with your interest, a fourth with your advice. Even wild beasts feel kindnesses; and no animal is so savage but attention will soften it and make it love you. The keeper handles the lion's mouth and is unhurt. Fierce elephants may be tamed down by nurture to render even slavish obedience. Thus, even creatures which are placed too low to understand, or value a benefit, are still conquered by the assiduity of persevering good deeds. A person is ungrateful for one benefit; he will not be so for another; he has forgotten two, but a third, added to those which have failed, will bring back his memory. A man loses, who is too ready to think he has lost; but he who presses on, and heaps fresh benefits on the former, at last strikes the spark of gratitude out of the hard and unmindful heart. The receiver will not dare to lift up his eyes to those many kindnesses; wherever he turns himself, flying from his own memory, there he will see you. Girdle him round with your good deeds".<sup>16</sup>

Almost all Seneca's works are addressed to individuals, and not merely dedicated to them, but intended for their practical advantage. This is the case with the treatise I have just been reviewing, addressed to Æbutius Liberalis. So, too, his letter on *Consolation*, to his mother Helvia, and another, on the same subject, to Polybius, the freedman of Claudius. In the same way, his admirable treatise on *Clemency* was intended, however great a failure the result might be, for the instruction of Nero. That on *Anger* was written at the request of Seneca's brother Novatus, afterwards the celebrated Gallio, to whom also the treatise on a *Happy Life* is addressed. The two essays on *Tranquillity*, and on the *impossibility of any injury being sustained by a wise man*, are addressed to his nephew, Serenus, who held the office of captain of the guard in the imperial palace; and that on the *Shortness of Life*, to Paulinus, probably some relative of his second wife, Lollia Paulina. All these papers abound in practical precepts, such as a writer would use who was addressing an individual to whose mind he wished to give an impulse, and have, therefore, a reality about them not often found in works of so highly rhetorical a style.

Seneca's *Letters*, addressed to his friend Lucilius Junior, at that

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<sup>16</sup> *De Ben.* i. 2, 3.

time prætor of Sicily, constitute the largest and most valuable, as well as the latest, portion of his works. He wrote them in his old age, chiefly when residing in Campania, whither he retired from public affairs, in consequence of the envy caused by his great wealth, the enmity of Nero, and the odium arising from the grave inconsistency which marked the closing years of his administration.

It is pleasing to turn from that painful picture to contemplate, in his own works, what were at least Seneca's sincere aspirations, and the results of his vast experience of life. We can pass a milder judgment on him than his contemporaries did, and, knowing how powerless is unaided human nature in such a conflict as his, can pity, rather than harshly censure, a failure we are already prepared to expect. There are 124 of these letters, distributed into twenty books. They treat of almost all subjects at all bearing on morals, in the most discursive and amusing manner. The acrimonious French critic, Laharpe, has attacked these letters for not being what they profess to be, epistolary productions, but rather lectures, which ought to have been delivered from the professor's chair.<sup>17</sup> I allow that they are often pompous and grandiloquent; but I do not at all see that they are otherwise than good letters, supposing that, like Lord Chesterfield writing to his son, Seneca intended that this correspondence should be the vehicle for indoctrinating his friend in what he believed to be a valuable philosophy. It abounds, besides, in allusions to books he happened to be reading at the time, visits or journeys he had been making, places which he had lionized, domestic incidents, and, in short, anything that would serve as a peg on which to hang some doctrine or other of the Stoic moral philosophy. A few of the remaining titles of these letters may give some notion of the immense variety of subjects treated of in them:

On the flight of time.

On change of residence.

How to discover and cultivate a friend.

On retirement.

On unhappiness.

On old age.

On poverty.

On consistency.

On flattery.

On magnanimity.

On the method of studies,

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<sup>17</sup> *Cours de Littérature*, t. iii. 2e partie, p. 163.

- On pronunciation.
- On kindness to slaves.
- On sea-sickness.
- On asthma.
- On the country-house of Vatia.
- On the baths of Baia.
- On the crypt of Naples (now called the *Grotto di Posilippo*).
- On true and false joy.
- On the theory of causation.
- On the fear of death.
- On the liberal arts.
- On the discovery of the mechanical arts.
- On the style of Fabianus.
- On the useless subtleties of the Stoics.
- On frugality.
- On keeping late hours.
- On moderation in eating and drinking.

No one, I think, could read this collection for the first time without being surprised and delighted with the fertility and energy of the writer, who could pour forth such a variety of entertaining and instructive disquisitions. I will not say that this admiration would not show a certain youthfulness of mind, and that, to attach oneself to Seneca, as Montaigne and other authors have done, might not produce a desultory and superficial style. Seneca ought not to be studied till severer authors have been thoroughly mastered; but, after that intellectual education has been gone through, and there is no fear of his doing the student mischief by faults only too easy of imitation, Latin literature affords few remains that would better reward study by materials of thought.

It must obviously be difficult, out of 124 letters, the very characteristic of which is extreme discursiveness, to select specimens in order to give an adequate impression of the whole, for it is not the curiosities to be found in this or that letter, but their accumulation, that constitutes the special value of this collection. Yet I shall endeavour to present one or two examples of a characteristic kind. When making out the history of a great writer, one always likes to know what his peculiar method of study has been, what were the secret arts he had either hit upon by fortunate accident, or derived from other great men less known than himself, or acquired by long and patient toil, for the production of the wonderful results we admire. His system was very simple: he read a few good books, read them very carefully, and each day selected some point out of them to think over at his leisure. He describes this method as follows:—



“There is something unsettled in the habit of reading a great many authors and books of every description. You must abide and feed upon certain intellects, if you wish to carry away anything that will remain faithfully in your mind. He who is everywhere is nowhere. People who spend their life in travelling, have many resting places, but make no friendships, and the same must be the case with those who do not apply themselves familiarly to any one author, but run hastily through all. Nothing hinders health so much as to be continually changing your remedies. A wound never heals on which you are always trying fresh applications; a tree will not grow, if it is too often transplanted; nothing, however useful in itself, can do good *in transitu*. A multitude of books distracts the mind, so that, as you cannot read all that you have got, it is sufficient to have as much as you can read. Therefore, always read approved authors, and if at any time you choose to diverge to others, go back to the former, and select each day some one maxim to digest. This is my own plan. Out of the various authors I read, I get hold, each day, of some one valuable point”.<sup>18</sup>

The impression we derive from the letters, on the whole, is that of an extremely haughty intellect. No man ever had a fuller consciousness of his own powers. In one place he tells Lucilius that he (Seneca) is one of those men who can confer immortality on whom they please, and that he does so on his correspondent, by mentioning his name in works which will descend to the remotest posterity. Yet, though he gives continual indications of this serene, self-satisfied pride, which it was part of his philosophy to encourage, he shows at the same time, both in the domestic relations and generally, great kindness of disposition generally. He speaks of the gladiatorial shows with as much horror as we should ourselves, and in a manner which shows him to have been far beyond his age. His energy and command over himself, appear to have been very great. Although of weak health, his plan seems to have been to master and overpower sickness by vigorous action, such as taking a journey. Again, he recommends loud reading as a means of bringing the system into play, and evidently lived in the midst of his palaces with the utmost plainness and frugality.

The antiquarian information with which these letters abound is very valuable, and would fully establish the fact, that the Romans of that period lived in quite as artificial and complicated a state of civilization as we do, on however different a principle it was based. Inventions we imagine our own, we find to have been anticipa-

ted eighteen hundred years ago; and travelling in the days of Roman roads and Liburnian galleys was at least as constant and as rapid as that of the age which immediately preceded steamers and railways. Perhaps one of the best examples of the sort of information which repays the reader of Seneca, is contained in the letter where he describes a visit he made to the villa of Scipio Africanus. It is doubly curious, both as showing how the Romans of Seneca's days looked back to the manners of those of Scipio's, as we should to the times of the Stuarts or Tudors, and also as giving a very striking picture of the extreme height to which luxury and magnificence had arrived in the early days of the empire, a height, or rather a degradation, which, with all its advancement in the arts and sciences, and all its disposition to give full scope to self-indulgence, modern Europe has scarcely reached. The following, then, is Seneca's description of his visit to the ancient country-house of the conqueror of Hannibal.

"I am writing this letter to you in the villa of Scipio Africanus (at Liternum in Campania), after having adored his spirit, and the coffer which I imagine is his tomb. I am persuaded that his soul has returned to heaven from whence it came, not because he commanded great armies (for Cambyses too had them, a madman, who used his madness luckily), but because of his admirable moderation and piety, which showed more nobly in him when he quitted his country than when he defended it. I beheld a villa built of square stone; a wood, surrounded by a wall, with towers raised on either side for the defence of the villa, and a cistern below the buildings and grass-plots, which might suffice for the use of an army; a small, narrow bathing-room, gloomy, according to the antique fashion, for our ancestors never thought a place was warm, unless it was also dark. I took great pleasure in contrasting Scipio's style of living with ours. In this corner, that dread of Carthage, to whom Rome is indebted for not having been captured more than once, used to bathe when fatigued with rustic toil, for he applied himself to farming, and, as the ancients were wont, used the spade and plough with his own hands. He stood under this sordid roof, and stepped on this mean pavement. But who is there now who could endure to bathe in this style? A man thinks himself very poor and shabby, unless the walls gleam with large and precious mirrors, unless Alexandrian marbles are set off by veneering of Numidian; unless they are elaborately coloured as with paintings; unless the chamber is covered with glass; unless the baths be lined with Thasian stone, once a rare object even in temples; unless the pipes which convey the water are of silver. And so far, I speak merely of the baths of the common people: but how shall I describe those of your

wealthy freedmen? What statues, what columns placed to support nothing, but merely for ornament! What streams of water, rushing with pleasant murmur down flights of steps! We have got to such a pitch of luxury that we will walk only over precious stones. In this bath of Scipio's there are very small chinks rather than windows, cut out in the wall, so as just to admit the light without injuring the fortification. But people now-a-days call baths mere cellars, unless they are so built as to admit in ample windows the full blaze of daylight; unless they can gaze upon the open country and the sea from the bench on which they rest. So that baths, which crowds ran to admire when they were opened, are now rejected as old-fashioned, whilst modern luxury devises something new under which to overwhelm itself. But of old there were but few baths, and those not adorned with any splendour. For what occasion was there for ornamenting places where the people were to bathe for a farthing, and which were intended for use, not for gratification? There were no shower-baths in those days, no pipes for making hot water flow as if from a fountain . . . But, good heavens, how delightful it was to go into one of those dark baths, covered with common plaster, which you knew that Cato, as ædile, or Fabius Maximus, or one of the Cornelii had tempered with his own hand. For the noblest ædiles used to fulfil this duty also, of entering the places frequented by the people and of insisting upon cleanliness, and a useful and salutary temperature, not that which has been lately discovered, hot as a conflagration, so that it would be fit for a slave convicted of some crime, to bathe in it alive".<sup>19</sup>

I shall conclude this paper by noticing, very briefly, the *Natural Questions*, the *Apocolocyntosis*, and the *Tragedies* (if the latter are to be esteemed, in whole or in part, as coming from the pen of Seneca the philosopher). The *Natural Questions* are addressed to Lucilius, and were written, like the Letters, towards the close of his life. They consist of seven books, treating of physical subjects and their causes, such as water, lightning, hail, snow, wind, earthquakes, inundations, and the like. Whilst of course they are of little value to modern science, except as a record of what was taught at that period, they are as curious and entertaining as any part of the works of this voluminous author in the point of view to which I have just adverted. The *Apocolocyntosis* is a *jeu d'esprit*, not very creditable to Seneca's good feelings, written on occasion of the death of Claudius, in which he gives full range to his powers of sarcasm



and ridicule at the expense of the deceased emperor, of whom he had written in terms of the most contemptible flattery when an exile in Corsica. The inquiry whether or to what extent the *Tragedies* which go under Seneca's name, were really written by him, would require a separate discussion. These are ten in number, all on Greek subjects, such as the *Medea*, *Hippolytus*, *Hercules Furens*, and the like, except the *Octavia*, a tragedy on the calamities and death of the ill-fated wife of Nero. Seneca himself is introduced as one of the characters of this drama, which is interesting and very striking in its plot, whoever was its author. These plays, in general, are characterized by the turgid taste of Seneca's period, and could scarcely have been intended for the stage. Their chief interest, therefore, is of an indirect kind, as aiding us in forming a conception of the time and the society in which they were written; though, otherwise, the proverbial sentences with which they abound will always recommend them to minds naturally delighting in moral truth thrown into that form. In point of artistic form, Augustus William Von Schlegel has passed a very severe, indeed abusive, criticism of them, in his *Lectures on Dramatic Art and Literature*, in which he says: "They are, beyond all comparison, bombastic and frigid—utterly devoid of nature in character and action—full of the most revolting violations of propriety, and barren of all theatrical effect". The value which such judges as Corneille and Racine appear to have had for these tragedies must greatly qualify so sweeping a judgment, even with reference to their artistic construction.

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ART. VI.—*International Exhibitions*. By J. H. POLLEN, M.A.

WE do nothing in the material order in this age and country without noise. We let the world know that we are not idle. Success is held to depend to a great extent on advertisement, and no movement is attempted without it. Those who in bygone days entered London after a long day's journey on the luxurious hind seat of the coach of that period, numbed with frost and cramped with human pressure, will remember the long miles of puffing, the huge white letters that trumpeted forth the glories of Warren's blacking—cocks fighting their own reflections in one boot, and early risers

shaving by similar help from the other. Fortunes are said to have depended on nothing else. The momentous question as to the rank and office of "Griffith" is still asked on all our walls. Sightseers and pleasure-seekers are encouraged by the mere numbers who go to enlarge their notions in the halls of the British Museum, the courts at South Kensington, amongst the varied reproductions at Sydenham, or spend happy days under the shades of Rosherville.

If we feel disposed to question the absolute necessity of these ever-recurring announcements, we are met by the fact, that this system is universal, all but absolutely so.

It is not a peculiarity of our own country either. As we quit the railway station in Paris, we are saluted from every blank wall with huge pictures of the *bon diable*, who, for a fixed price, showers down on his votaries every requisite even for the fastidious costume of the Imperial Capital.

And when the world requires rousing in this startling fashion before it can pay attention to its own proper affairs, it must be concluded that things are come to pass at which, without some amount of sound, no object or interest can be seen or attended to, and modest merit must be concluded to be out of court by the mere force of terms. From Mr. Mappin's cutlery and Mr. Thorley's food for cattle, up to Phidias and the Parthenon, nothing can be bought, looked at, learnt, or enjoyed, without advertisements.

Serious interests are involved in this same *ananke*—this pressure of a fate that seems inevitable—no less than those of particular dealers in blacking, cheap wines, table knives, and the like.

The world is not aware of its treasures of art, its opportunities of learning, refinement, and self-improvement, and it has to be roused. This is a fact. There have been states of society certainly in which these constant airs on the trumpet were not needed, when the fame of the wise and great flitted, as it were, from mouth to mouth amongst the living, and was the breath of the nostrils of men. The unwritten tragic hymn—the common property, when once heard under the slopes of the Acropolis, of the philosopher, the dandy, or the common soldier—solaced the Greek in his captivity. But he had no *Times* to remind him of the attractions of Athens; nor do we imagine that he read the number or street in which Praxiteles lived, chalked on his "long walls".

Whether the comforts, appliances, luxuries, conveniences of our modern "civilization" brutalize us, so that our faculties, while sharp enough in some respects, are really becoming

inert and dull to see what is best and most suitable for our well-being, even in mere temporal matters of daily life (all we venture to discuss at present), we will not guess. Whether the mere numerical quantity of calls on our attention runs beyonds our mental capacities of following them intelligently, whether, in short, we become stupider every day from the mere clatter of daily modern life, are all questions beyond our power of solution. We only come back to a broad fact, that all things are, and apparently must be, done at some expense of noise and advertisement; that those who have no private end to serve—the directors of our museums and galleries—have to rouse the public to notice that their works of art are attractive by perpetual statements of the numbers that come to visit them.

If these venerable repositories of treasures, without equal in the whole world, need to be brought thus under notice—assuming, we say, this law to be of universal application—it is evident that the material productions of the country and the time must be made public by similar means. If Pallas Athene needs a column or two, how much more the sculptor, the painter, the cabinetmaker, the goldsmith, engraver, embroiderer, weaver, and so forth, who have no name of old renown to resound for them, who compete with the sculptor, embroiderer, or weaver of other countries in the market, to whom a good name is wealth, and to be unknown is starvation!

Thus it has come about that no art, or craft, or trade, or industry, seems to get on without not only privately, or rather individually, sounding out its own estimate of its own excellence, but without a far more imposing method of publication—great exhibitions, universal as regards each country, or universal as regards all other states as well; national and international exhibitions, which, by calling attention to all kinds of excellence in manufactures, may anticipate fame to some extent, and set the value of a considerable draft on posterity to the account of the industry of to-day.

The best kind of national exhibition, with which all readers will be familiar enough, is that of the Royal Academy of Arts, now just beginning its second centenary of annual shows.

These exhibitions are confined to pictures, engravings, statues, busts, etc., and have no place for works of art, however good, which do not come into this category.

It would, however, be a great error to say that there are no other kinds of works of art than these. We hear of “high art”, “fine art”, and “industrial art”, distinctions not very clearly understood by those who use the words. All works



of sculpture, engraving, painting, enamelling, or whatever the material in which an instructed mind *records ideas of what is beautiful*, are works of art. Every one who seeks after such an end, and attains it more or less perfectly, is an artist.

We have but to glance round our galleries to see that art has by no means confined itself in its palmy days to paintings on panel, canvas, or walls, or to the sculpture of heads or figures. Most of these latter, that are not modern, have served as parts of the decoration of something else: a church, a palace, an altar, and so on. Some of our choicest works are shields and suits of armour, or cups and vases, chalices and reliquaries.

It is evident that much art is, or ought to be, produced in the country which cannot be shown in the Royal Academy exhibitions; and if these are a desirable stimulus to painters and sculptors, that they may see their own faults and the excellencies of their neighbours, it may be asked, why such a means of improvement should not be extended to other artistic productions and the artists that produce them? And as much of the manufacturing produce of the country has but little room for art or decoration, such as the heavier textiles, machinery, engines, cutlery, and so on, but recommend themselves by their solid, strong, ingenious, or durable qualities, why should not these also be capable of improvement by the same process?

The French have entertained this question earlier than ourselves, and began the process of exhibiting their national productions as early as the seventeenth century. Towards the close of the last century, however, the idea was resumed, and became a sort of national system.

Our readers are aware that in France there are government factories or establishments for works of art, as well as for ships, arms, and munitions of war, such as we have ourselves. In the middle ages many fine and beautiful kinds of productions were made in England and imported into France. Sculpture, for instance, according to Professor Cockerell; embroidery and lace, broadcloths, and perhaps other materials. France itself excelled in wood and ivory carving, and specially in enamels from the famous workshops at Limoges. When the country began to recover from the effects of the wars with England, and to take a prominent part in the struggles in central Europe under Francis the First, that monarch married into the Medici family, so prominent in the encouragement of art of every kind. Benvenuto Cellini, under the political troubles of the day, obtained a refuge at the court of Francis, who welcomed cordially, as a friend, an artist with accomplishments so entirely after his own heart. The Limoges enamels were revived, and

all sorts of varieties of that costly work were produced. The *champlevé*, or inlaid, the translucent, so brilliant in colour, black and white enamels, and endless varieties, filled the houses of the King and the rich feudatories, as well as the sacristies of the great cathedrals, abbeys, and priories, with reliquaries, chalices, cups, dishes, caskets, and all kinds of objects of daily use.

But it was not till the reign of Louis the Fourteenth that national establishments were set up. Then the famous Gobelins factories were established by Colbert, a minister of great power and deep forethought. He got workmen from Beauvais and elsewhere, where carpets and tapestries were produced in dyed wool. Looms were made for working pictorial tapestry, and the artist Lebrun was employed to make designs and superintend the execution of the work.

Of the finer tapestries of those times many pieces survive, some little faded, all full of an excellent feeling, for the rich colour of which that material is so good a vehicle, and of which the soft, yet dead, surface is so charming an exponent.

To these royal establishments were added the porcelain factories at Sèvres. As early as 1738, a private gentleman (the Marquis de Fuloy) had set going a porcelain manufactory at Vincennes. This was bought by the *Fermiers Généraux*, and was then transferred to Sèvres, where better facilities of clay, etc., were to be found.

These factories have survived all the political shocks and changes of government of the last and the present centuries, a proof that all schools of political opinion in France have concurred in recognizing the wisdom of keeping up establishments for the encouragement of art, that do much more than add to the honour and glory of the country. It is felt that these are practical schools for the training of draughtsmen, painters, and other artists, and that they keep alive in the country a sound knowledge and a true feeling for what is right in art.

The manufacturers of the country, though not immediately connected with these institutions, reap substantial benefits from them. They can instruct their workmen, and get artists from these institutions in a way not possible to our private makers or firms of manufacturers in these islands.

When the crash of the Revolution of 1793 had overthrown the social system of the country in all its grades, and deranged all forms and systems of industrial pursuits, an attempt was made to revive the interest in these national manufactures, then threatened with collapse, that would probably have proved perpetual; for, once destroyed, such expensive establishments would hardly have been remodelled while the country was in-

volved in war, the most exhaustive that had occurred in modern history.

The Marquis d'Avèze proposed to the government, and was by it intrusted with the arrangement of, an exhibition for the purpose of getting public sympathy for the Gobelins and Sèvres productions. He was himself, however, banished with the rest of the nobility of the country, and the exhibition came to an end. The experiment was tried a year after with success, and was repeated frequently under the Empire.

It was found that a demonstration of this kind of the national industrial activity acted as a stimulant under the depressed circumstances of the time. Napoleon saw that he could not, without some extraordinary fillip, even after the Empire was firmly established and order restored, keep up the unnatural system of protection which he wanted to establish. Industrial exhibitions went on, therefore, and were gradually enlarged and made more complete as representations of national industry. Special attention was directed to cottons and other manufactures in which England excelled, the greatest and most formidable of commercial rivals.

Under the Restoration the same system prevailed, and it was continued under the Government of July. These exhibitions, though less frequent, became more splendid, at least were carried on during these reigns with greater outward display. For one of them the court of the Louvre was covered in. The numbers of exhibitors, too, who in the early gatherings amounted to very few—no more than could easily find space in one or two *salons* of the Palace of St. Cloud—kept on increasing, and in the days of Louis Philippe exceeded two thousand in number. On the last of these occasions medals were distributed, and some twenty decorations of the Legion of Honour.

Thus grew the type of the vast gatherings of all kinds of productions, raw and manufactured, the works of skilled and unskilled labour, which have dazzled our modern eyes.

Little need be said of assemblies so recent as to have been seen and known by most of our readers. From Hyde Park, where the first of these efforts was made, the fashion has passed to Paris, to Florence, to Dublin, Amsterdam, and other capitals. It is to be repeated in London next year, and with many important differences, as we shall presently notice.

The Exhibition in Hyde Park inaugurated the very important element of universality. The invitation was addressed, not to the country, but to the world. From John o' Groat's House to the Columns of Hercules and the Cape; from Galway, eastward, to New York *overland*. The whole human race,



white and black, clothed and bare, was asked to show what it could do. A vast building was proposed, and, after many competing schemes, was simplified by Sir Joseph Paxton into a greenhouse, after the type of his successful achievements at the Duke of Devonshire's palace at Chatsworth; and ample light and space were secured at a cost moderate in comparison with what an architectural structure would have come to, and so was inaugurated the very successful International Exhibition of Hyde Park.

Prophets prophesied against it, and the turbulent threatened it with every sort of calamity. It resulted, however, notwithstanding these dismal forebodings, in a great success.

Of all these meetings, it was for the British Empire, we fully believe, the most important and useful. At the same time, it was neither the largest, the most splendid, nor, as a show, the most complete. The buildings that housed the collections in 1862 were larger. A portion of them was of solid masonry. This was built up as a kind of shell or carcass, with a view to future surface decoration, much as the Pantheon and other unfinished buildings of the Empire in Rome received, or were intended to receive, complete coatings of rich marbles in the way of veneers. Some of these have been robbed of their splendid outer coats during the periods of fiery destructions, sack, and misery which the Eternal City has experienced as the home and centre of political changes, ambitions, or oppression during the long course of its modern and Christian history.

The solid part of the structure of 1862—intended, of course, to survive the year—and the Exhibition itself suffered under the heavy cloud of the Prince Consort's death. That catastrophe was a sensible and permanent loss to the Exhibition. It is impossible to inquire into or reflect upon the interests advocated by that Exhibition without recognizing that the loss of the Prince was a lasting injury to the cause of art as connected, or intended to be connected, with our manufactures. An independent authority, free from personal material interests in these questions, above political disputes and ambitions, is of the last importance for such a cause in such a country as ours; we are so personally interested in governing ourselves, so full of immediate political cries for momentary economies, so timid before a noisy public opinion. The sparing of any temporary national disbursement carries the day in Parliament, over the proposal of what may be a very wise and provident expenditure, so that some one special authority is absolutely required to make such a cause fairly heard; some one, not the sovereign, nor the heir to the crown, nor any political leader, nor a prominent member of any political party.

Who has answered these requirements in our time as the Prince Consort did? Whatever differences critics may hold as to his preference for this or that school of art (and no one is impartial), it cannot be denied that the Prince was a genuine lover of art. He was well read in the literature of art; he was a man of solid powers of mind, and had devoted himself to the subject.

Another great authority has been lost to us since—the late Cardinal Wiseman. As a connoisseur, he had larger experience, and enjoyed a more world-wide reputation. What he thought of the Prince he has himself told us. Both these men commanded the attention of all our society. Both had a serious influence on the art of the day. We suffer a double loss in their deaths.

The importance, however, of all these gatherings is not so much in the temporary brilliancy of the display. We are only considering national or international exhibitions as far as such a dram can affect the real state or progress of our skilled productions. We do not believe that the stimulant had a result as good and as lasting in proportion after 1862 as after 1851.

Something, let us hope, is always effected by good intentions and serious efforts.

The Exhibition of 1851 showed us great and glaring deficiencies in much of our superior skilled workmanship. The distance between ourselves and our neighbours, specially our artistic neighbours across the Channel, was then recognized. The deliberations of the juries, the care with which the highest opinions on the matter were collected, and brought to bear under an authority such as that of Prince Albert, had serious results.

In 1862 the distance between our makers and those of the Continent was less obvious. Ours had learnt from them. But the good of such a comparison is in its results, and we doubt whether we have gone ahead at anything like the same rate subsequently.

Thus, in 1867 a great exhibition was held in Paris. We did not at that time take a position as comparatively hopeful as in 1862.

Several branches of manufacture in which we had held the palm, were not represented by the British section as we should have felt the right to expect. If our machinery was as good, it was not as cheap as much that came from Germany, France, and Belgium. The show of cutlery was below our former successes.

Much splendid workmanship of government, as of private

production, was without equal—Armstrong and Whitworth guns and stores, for example. But in work of an attractive and beautiful kind, the French generally had the best of it, more generally than they *need have had or ought to have had*. As far as cost and splendour of material went, our makers were forward enough. But in design, and generally in colours, why should we abdicate the highest posts? Why should the best paper designs, the best fancy furniture, the best stuffs, goldsmith's and jeweller's work, be produced from French looms and workshops? We may answer, that the French love and care more for art than ourselves. But that is not all. *They take more pains*. Are our own connoisseurs, when they are *travelled or otherwise educated*, less acute critics—have they inferior powers of observation? Have they, in other words, less capacity for appreciating art than their neighbours? We shall not now form a comparison; but we may say safely, whatever capacities we may have, *we do not as a nation take the same pains to improve them*.

Look at the old houses in the three kingdoms, their real magnificence, their priceless contents. Look at the mansions of Dublin, for example, and the provinces, built and adorned during the wasteful but splendid years that immediately preceded the union, and decide whether or not an enlightened and genuine love of good art is not still possible amongst us as it existed only so short a time ago.

It was not the manner of those days to make the outsides of houses splendid in our capitals; but there was no lack of such magnificence in the provinces, where lords and country gentlemen reigned as princes in feudal or barbarous magnificence.

We return, then, to the statement, that the French *are better taught, because they love and value art, and that they love and value art more because they are better taught*. This kind of teaching is sure to react on the entire national taste. Such a machinery as France enjoys in her drawing schools, and her Gobelins and Sèvres factories, and in the care and pains, the generous lavishness with which she adorns all her public buildings, is the very best possible for moulding the public taste. The cost of it is *returned in the sort of world-wide possession of the markets which France enjoys*.

The Exhibition of 1867 demonstrated this in various ways. We name one. It has been recognized at all times that the highest subject for the powers of an artist is the representation of the highest work of nature, man, the image of his Creator. The art of all nations and races has gradually risen to this lofty theme, beginning with the symmetrical notchings of savage



islanders, and rising through the forms of vegetable and animal life. Thus, Greek architecture, without the actual or expected sculpture of the figure, scarcely rises into art, and might be called a graceful embodiment of mathematical principles of proportion. If we look at French manufactures, from plum boxes and fans, or from paper-hangings for taverns, up to costly cabinets, clocks, goldsmiths' work, porcelain, all kinds of beautiful objects, figure design is *the* important element of their decoration. Though good schools for art instruction are scattered about our towns, the field seems generally abandoned by our manufacturers. If exceptions appeared in Paris in 1867, they were occasional and special efforts of artists rather than of manufacturers, or were produced in the government schools.

The general designs or shapes of many objects of daily use showed an improved form. There was much excellent workmanship, but these higher qualifications were deficient.

Do we not at this moment, in 1870, hear of the distress of our silk weavers; of the way in which they are outdone by French competitors, even in the home market? Now, good examples—as, *e.g.*, the Oriental textiles—are at our command more readily and completely than at the command of the French. And we have the old specimens of Italian, German, and French looms in the Museum of Industrial Art. Dyes and raw material ought to be at our command as fully. Our merchant ships cross every sea, and find a home in all ports of the world. If we got good teachers, good designs, good colours, should we not produce results more nearly emulating the French? for we may assume that our machinery is quite as good. So, again, in the case of metal-work, etc. Why do the French goods of the higher sorts eclipse our own? Because they have better instructed designers and workmen.

If we go to one of our own factories, not one out of a hundred designs would satisfy the judgment of any instructed eye, even in most modest, simple colours and patterns. The makers excuse themselves, as the exhibitors did in the exhibition of 1867, for putting hideous objects side by side with their best specimens in their glasscases, on the plea that vulgar tastes prevail and demand these things. But the fallacy is transparent. Designs pass out of fashion daily, and the elements of size, quaintness, or quantity of colour, which suit special tastes, could always be provided for by good designers without violating right principles. The manufacturers, in fact, themselves set the fashion. And French manufacturers would follow our designs wherever they found them good.

Now, if we produced these decorative "goods" of various kinds, really good in design, we must be allowed to think that the way to America is shorter from Galway than from Havre, and that our various manufactures would find space and circulate in markets now almost exclusively supplied from France. It is not the material resources, but the mind that should animate our productions, that is now so wanting. Whatever social disturbances, such as the friction between labour and capital, may do to disturb the equilibrium of trade, we think that commerce would stand on a sounder basis if our manufacturers thought more seriously of their own deficiencies.

If such a lesson as this has been learnt in any kind of measure since the last Universal Exhibition, our presence there has done us just so much good.

This brings us to the question of the anticipated meeting of 1871. This Exhibition is differently projected from those of former occasions. It has very material and very valuable points of difference.

Instead of an enormous structure to contain the world and its productions, we are to have moderate buildings, connected with the Royal Horticultural Gardens, and the Great Hall of Arts and Sciences, in which inauguration meetings, distributions of prizes, etc., can be suitably housed: and though all the world is invited to exhibit, it is only invited to contribute two or three classes of productions for the year. Thus the enormous cost and immeasurable extent of such a display as that of Paris, too big to be taken in in its completeness, and too full and various to be useful as a lesson or a warning, except in a very general way, to exhibitors, will be avoided; and those who do bring their wares to be seen, will stand a chance of careful judgment and criticism, and may be expected more fully to reap the benefit of kind and considerate counsels.

The programme of the proposed exhibition informs us that the following classes only will compose the collection:—1. Fine Art. Paintings in every material, Sculpture in every material, Engravings, Architecture (designs, we presume), Tapestries, Designs for Manufactures, Copies of old works, Casts of all kinds, etc. This forms class 1. 2. Pottery of all kinds, including Stoneware, Building Materials (ornamental), etc., with the Machinery for producing them. 3. Educational works and appliances, Books (grammars, we presume, and elementary manuals and primers), and Maps, and School-room furniture; Appliances for Physical Training, with Toys and Games; Natural History and Physical Science Specimens. 4. Wool and Worsted fabrics and Raw Material and Machinery for making

them. These last three classes are called "industrial art"—*i.e.*, manufactures.

The classification is to be, not by nations, but universally by classes alone. At the same time, a third of the whole space will be given to foreign exhibitors, who may class their wares independently of the British, still, as we presume, by classes, and not separately. All pictures, all school-books, and all worsted work or cloths are to be classed together.

Any competitor may prefer to compete *in the British* portion, and will be judged in that connexion if he prefers it.

Thus all the attention of the judges and the public will be simply devoted to looking out the best products in each class put in juxtaposition, as if there were no differences of nationality.

To gain a place in such a contest is obviously a greater distinction and more profitable to the exhibitor, specially when the whole attention of the year centres on a few classes of objects, than to get a prize in a world-wide fair, such as those of former exhibitions. No prizes are to be given, only certificates of *admission to the class*. Exhibitors cannot therefore claim the right of sending in *anything*. The jurors or judges will exclude what is too bad or ugly for exhibition. Foreigners are to bring evidence of such selection having been already made in their own country.

Another new feature is, that these exhibitions are to be annual. All classes of objects will be shown sooner or later. The turn will come round for every kind of manufactures, of some more frequently, no doubt, than of others.

Exhibitions of this kind seem to come nearer to those early shows in France alluded to already, with the additional element of the foreign contributions, which will furnish a useful standard of comparison, and certainly will always give us something which our native products have not of their own.

No one who has studied the working of the great gatherings we have had heretofore, will fail to see how open they are to the spirit of political intrigue and petty national jealousies. When all Europe is looking on, and gold medals, decorations, and other such glittering prizes are in the atmosphere, it is the exhibition itself which becomes the end in view, not any knowledge or conviction we may hope to gain from it, which may be brought to bear on the weak elements of our manufacturing industry, whatever those may be. Now, it is of infinitely small importance whether the number of prizes be favourably large to this nationality or that in the awards, *if that is all*. If our products are excellent, the producers will soon



be reconciled. Their wares will be forced on public attention. If adventitious circumstances, petty jealousies or intrigues occasionally give a preponderance of medals or rewards where they are not in justice due, this is a fault to which the immense amount of display, and the foolish desire to secure for the nation holding the exhibition a larger share of brilliancy or success than similar efforts have done for a rival a year or two before, not unnaturally lead. It has nothing to do with the permanent possession of the market, which will naturally follow if we produce the best article.

It may be hoped that in the modest displays such as are now proposed, more serious motives will prevail, and that the permanent benefit of the arts will be their object, rather than the temporary triumph of one nation.

The noise, the excitement of an exhibition, must be considered as a kind of national stimulant. It gives us a lift over our difficulties. It is not in itself an accession of strength. It may be the means of suggesting new ways of getting over special difficulties. Mainly it serves us when it shows our deficiencies. Take an illustration from competitive examinations, which for all careers are becoming the order of the day. They do in some ways positive harm to education, because they fix the notion of the examination itself on the minds of the young as the main object of their ambition. Hence a serious disturbance in solid studies. This truth is beginning to become so apparent, that we have just seen the Council of Military Education projecting important reforms to meet the difficulty. That body has done most wisely in taking such measures as shall as far as possible reduce their examinations to a test of proficiency in the general education of the day.

But though these examinations are open to abuse, still, for deciding the rival claims of individuals, more numerous than the places they contend for, there is no other fair method of decision than by such examinations, conducted impartially.

But it would be a shallow judgment that decided on such standards or ordeals as the only tests of merit. The ordinary work of men in their different ranks must be tested by observation and experience, by what they do in their station, what they produce in their art or craft, not by the show they could contrive to make in a competitive exhibition.

Imagine Mr. Gladstone, Mr. Lowe, Mr. Childers, and any number of possible cabinet ministers, brought to deal tables, to be put through a stiff examination in political economy, Irish land questions, and so forth, that the readiest answerers might have their marks totted up for the different vacant offices.

As we do not want "doctrinaire" politicians, neither do we want theoretical disturbances in the artistic and manufacturing pursuits. There will always be danger of this if we trust to excitement to do more for us than excitements or incitements can safely do. They wake us up, they encourage us by showing what others are doing and we are not doing, and by showing that what others do we ought to do also, and can be taught to do after our own measure.

What we shall hope to see is, that our arts and trades will be brought thoroughly to understand *where* they fall short, and that the doctrine of "thoroughness" shall be laid down and ground into the labouring or productive mind of the kingdom.

Our skilled products do not equal those of our neighbours, just when and where we do not thoroughly take pains to get, not plausible instruction, but the very best that can be got.

Sculptors, carvers, painters, goldsmiths, bronze founders, jewellers, silk dyers, paper stainers, and other ornamental craftsmen, cannot be formed by giving workmen or foremen second-rate teachers. They must have teachers thoroughly accomplished. It is not by putting pupil-teachers or half-educated professors over boys, that we can really teach them grammar or languages. Such machinery may do some of the rough work here and there. But to teach any science, any branch of art thoroughly, the teacher, though he is imparting only the elements of his subject, must know it thoroughly. We are concerned now only with the teaching of the arts, not with education in its proper sense, which is to be imparted by different means, and at an earlier age. Our present object is the special training of the workman. There are real, true, recognizable principles, that underlie all sound teaching of the arts as of the sciences.

Half-educated teachers will make the little they know go as far as possible, and slur over what they do not know. Unhappily the results of the various comparative exhibitions hitherto have not thoroughly roused our industrial classes to their want of training in their several crafts or arts, or to the knowledge that the remedy for much of it is in their own hands.

What we want for one special profession, like the military, we want for all, and for all ranks of each in such measure as it can be obtained : a good, solid foundation of EDUCATION PROPER. As no sound *education* can be had that is not founded on religion, it is this that lies at the root of all our wants. This foundation must be assured. Firmness of character, a just appreciation of our position in society, and our duties to God and our fellow citizens, cannot be imparted to our youth by any

system of education that does not teach man thoroughly the truth, and his duties, hopes, capacities, dangers in life, and hopes after it. When the working man, that being who has been the object of late of so much amateur philanthropy, when the working man—and we call every one who can work, from a splitter of slates up to Raphael and Phidias, a working man—when this personage is found with solid qualifications, however modest, and a just knowledge of himself and his neighbours, we venture to think that all trades, pursuits, crafts, and arts will fare the better.

On a foundation like this, special knowledge can be built up by special instruction. Mathematics, as far as they are required, drawing, the principles of colour and composition, the lines and proportions that rule and are exemplified in the eternal types of nature, meant, as nature is, for the sober delight and encouragement of man. This, the training of the mind, may go on with the training of the hand. If a good designer, an understanding teacher could be introduced generally into the factory or the workshop, collect round him a pupil or two, and instil into the mass of workmen some intelligence and love of harmony and beauty, the general raising of the mass of workmen would follow of a certainty.

Rough workmen and ignorant people will not naturally appreciate beauty; but they may be taught to do so, and the more intelligent amongst them will advance. They crowd our museums and galleries; they only require to be taught how to observe.

Now, if the coming exhibitions, with the fine works proposed as one class of objects shown in them, are wisely used, they may teach us at least what we do not know, and much that we have to learn. We hope that educational apparatus will suggest deeper and more solid reflections on that great necessity, than mere scientific toys or mere superficial cramming, which should be more wisely classed as “means of imparting special knowledge on special subjects”.

The deeper interests of education, however, cannot be touched on here: they lie out of the special direction of the foregoing remarks, which refer to the proper and legitimate province, and that only, of such exhibitions as the state can organize for the special benefit, warning, and encouragement of its working classes.

The helps in training for special arts or crafts, which the workman of the middle ages obtained with such prodigious results of vigour and skill from his guild, must neither be forced upon him, nor yet so provided for as to exclude his own active



co-operation and provision for it. We want him to be helped and raised. Let us rather say, induced and taught to raise himself—not wheedled into any unnatural precocity, nor puffed as a reality while he is but a sham.

In the capacity of our population for refinement of the virtuous and solid as well as of the intelligent sort, we have profound faith. With the varied gifts of the three races that people the three kingdoms, the just recognition of their proper excellencies, and the mutual light and help they should impart to each other, they may do anything, if justice be fairly dealt out to them. But this “if” is imperative. Sham justice, a pretension of education, superficial teaching, the miserable theory, that half a man’s nature or faculties can be cultivated at the cost of the other half—a smattering of showy accomplishments artificially acquired, in place of a training sound and complete, however modest in aim—these remedies for the wants of classes too poor to provide for themselves, will neither lift nor refine us. They remind one of those pills and ointments which profess to cure every disorder. Neither mind nor body will be restored by universal medicines. They must be built up with wholesome fare, gentle remedies, wise and solid training. The state is in danger when this is ignored, and what may be urged from one point of view as mere justice to the individuals of a class, may be equally insisted on, from another, as a principle of enlightened political economy.

ART. VII.—*The Lay of the Heads; or, the Vengeance of Connal Cearnach.* By AUBREY DE VERE.

[The original, of which this poem is an adaptation, not a translation, will be found, in a literal prose version, in "The Dean of Lismore's Book", p. 58. The author of it, Connal Cearnach Mac Edirskeol (or O'Driscol), is thus described: "He was the most ancient of all the Ossianic poets. He was contemporary with Cuchullain (also spelt Cuchullin), who flourished, according to Irish historians, in the first century. Cuchullain was his foster-son, and, upon his being slain, Connal took vengeance on his enemies by putting them all to death". The story is narrated in one of the most beautiful collections of old Irish legends, where it ends thus:—"Conall was beyond sea; but the widowed Eimer sent to acquaint him, that he might avenge Cuchullain. This great knight of the Red Branch found the head of the hero used as a hurling ball. He contended with, and slew, those who had so insulted the remains of his friend".<sup>1</sup>

The old heroic legends of Ireland, with their strange combinations of the barbaric and the pathetic, afford many fit subjects for poetry. I have lately had the good fortune to read a poetic version of one of the grandest among them—one of which Cuchullain is also the hero. It is by my friend D. F. Mac Carthy, Esq., who, I hope, will be persuaded to give it to the world.]

Thus spake the clansmen: "Harper, sing  
The 'Lay of Heads', the 'Widowed Queen':—  
Then sang the Harper a fierce sad song  
That rang like a funeral *keen*."

The Bard returns to a stricken house:  
What shape is that he rears on high?  
A withe of the Willow, set round with Heads:  
They blot that reddening sky!

A Widow meets him at the gates:  
What fixes thus that widow's eye?  
She names the name; but she sees not the man,  
Nor beyond him that western sky.

"Bard of the Brand, thou Foster-Sire  
Of him they slew—thy friend—my Lord—  
What Head is that—the first—that frowns  
Like a traitor self-abhorred?"

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<sup>1</sup> *The Story of the Irish before the Conquest*, by M. C. Ferguson.

Daughter of Orgill, wounded sore,  
 Thou of the fateful eye serene,  
 Fergus is he. The feast he made  
 For the death of Cuchullin.

"What Head is that—the next—half-hid  
 In curls full lustrous to behold?  
 They mind me of a hand that once  
 I saw amid their gold".

'T is Manadh. By the sea he dwelt,  
 A prince, and named the waves his steeds:  
 'T was he that struck the stroke accursed—  
 Headless this day he bleeds.

"What Head is that close by—so still,  
 With half-closed lids, and lips that smile?  
 Methinks I know their voice: methinks  
 We two were friends erewhile!"

His hand was tangled in the hair:—  
 Thy Head he raised—my Foster-Child!  
 That was the latest stroke I struck:  
 I struck that stroke, and smiled.

"What Heads are those—that twain, so like,  
 Flushed as with wine by yonder sky?"  
 Each unto each, that Head they spurned:—  
 Red on that grass they lie.

"That twain, all grim, which face the east?"  
 Laegar is one; the other Cuilt:  
 Silent they watched the sport! they share  
 The doom, that shared the guilt.

"Bard of the Vengeance! well thou knew'st  
 Blood cries for blood! O kind, and true,  
 How many, kith and kin, have died,  
 That mocked the man they slew?"

O Woman of the fixèd eye,  
 The untrembling voice, the marble mould,  
 Seven hundred men, in house or field,  
 For the man they mocked, lie cold.



“Their wives, thou Bard? their wives? their wives?  
Far off, or nigh, through Inisfail,  
This hour what feel they? Stand they mute  
Like me? or make their wail?”

O Eimer! women weep and smile:  
The young have hope—the young that mourn:  
But I am old: my hope was he—  
He that can ne’er return.

“O Connal! lay me in his grave:  
Oh! lay me by my Husband’s side:  
Oh! lay my lips to his in death”.—  
She spake, and, standing, died.

She fell at last—in death she fell:  
She lay, a black shade, on the ground:  
And all her women o’er her wailed  
Like sea-birds o’er the drowned.

ART. VIII.—*On the Configuration of the Planet Mars.*—By  
HENRY HENNESSY, F.R.S.

IN the first number of *THE ATLANTIS*<sup>1</sup> I ventured to lay before its readers an exposition of the conclusions to which I had been led regarding the physical structure of our Earth. As the other planets are governed by the same mechanical laws, it seems to follow, that some resemblances should be expected in those which are our nearest neighbours. Of these, Mars has attracted much attention during the last half century, but astronomers have not as yet come to a settled conclusion regarding some of the most important elements of its outward configuration. On these grounds, I have been long since induced to examine how far the same principles on which I endeavoured to explain the leading phenomena of the Earth's structure might assist in clearing up the anomalies presented in the appearance of Mars.

If Mars were originally in a fluid state, its outline, in accordance with the observed time of its rotation, should be that of an ellipse deviating very little from a circle. Its ellipticity would lie between the two limits  $\frac{5}{4}q$  and  $\frac{5}{2}q$ ,  $q$  being the ratio of centrifugal force to gravity at its equator. The period of its rotation is generally set down as 24h. 38m. nearly; consequently the value of  $q$  should be nearly what it is on the surface of the Earth, unless the planet possesses peculiarities of structure difficult of explanation on any rational physical laws. The mean density of Mars has been estimated at 5.15, while that of the Earth is 5.5, consequently there seems to be no such difference in the mechanical properties of the materials of the two planets, as to countenance a theory of wide differences in their physical structure. Even if Mars were perfectly homogeneous and equally dense throughout, its ellipticity, from what has been said, could not exceed the small fraction  $\frac{1}{230}$ ; in other words it ought to appear to astronomers with an almost circular disk. Viewed through the telescope, it does present a disk which appears absolutely circular to the eye, but this appears not to be the constant result flowing from micrometrical measurements.

In 1784 Sir William Herschel estimated the polar compression of Mars at  $\frac{1}{16}$ , but this result was universally rejected as erroneous. Schroeter not long afterwards estimated it at  $\frac{1}{81}$ ,

<sup>1</sup> *THE ATLANTIS*, vol. I. p. 170.

while Maskelyne and Bessel separately concluded that its value was insensible, or that its disc was very nearly a circle. More recently Arago, Johnson, Main, and Kaiser have made observations, while Oudemans has submitted Bessel's results to fresh reductions and careful comparison. According to Arago<sup>2</sup> the flattening of Mars appeared to vary from  $\frac{1}{29}$  to  $\frac{1}{100}$ , according to Main<sup>3</sup> from  $\frac{1}{29.6}$  to  $\frac{1}{198.4}$ . In both these instances, the possible error is greater than the least value assigned to the quantity under discussion.

On the other hand, Johnson has published results which confirm the conclusions of Bessel and Maskelyne; while Oudemans, after carefully combining Bessel's observations by the method of least squares, declared that the figure of Mars may be assumed as spherical.<sup>4</sup> The same general result has been also obtained by Dr. Winnecke<sup>5</sup> from observations made by him at the observatory of Berlin, and he concluded that the equatorial and polar diameters of Mars are both equal to  $9'' 33$ . More recently Professor Kaiser, of Leyden, in the *Astronomische Nachrichten*, No. 1468, gives the results of observations made on the planet during its opposition in 1862. He makes the polar diameter  $9'' 437$ ; the equatorial,  $9'' 518$ ; and the flattening, therefore,  $\frac{1}{118}$ . But he seems to regard this as a higher limit, and he concludes generally that its value has been overrated. In another communication printed in the proceedings of the Academy of Amsterdam,<sup>6</sup> he distinctly states, that the large amount of flattening given to Mars by Main is not confirmed by his measurements. It thus appears that eminent observers differ very widely in their conclusions as to the figure of Mars; and this is not surprising, when we reflect on the smallness of the quantity under discussion. The difference between the apparent diameters of Mars is only a very small fraction of a second, and many of the observations taken separately differ between themselves to a much greater extent.

The question remains thus open for further investigation; but in the meanwhile those who refer to the figure of Mars as irreconcilable with the physical theory of the structure of our planetary system, are assuredly deficient in scientific caution.

This is rendered more clear by showing that on no rational theory of planetary configuration can the large oblateness attributed to Mars by some observers be explained. It can scarcely

<sup>2</sup> *Oeuvres*, vol. xi., p. 252.

<sup>3</sup> *Rep. Brit. Assoc.* (1862) *Transactions*.

<sup>4</sup> *Astronomische Nachrichten*, No. 838.

<sup>5</sup> *Astronomische Nachrichten*, vol. xlviii, page 97.

<sup>6</sup> *Verslagen der Koninklijke Akademie, Natuurkunde* xv. deel. p. 349.



be done on the fluid theory, even with the simplified form of the hypothesis which I have proposed,<sup>7</sup> without supposing physical properties in the materials of the planet somewhat different from those in our earth. Yet on this hypothesis, it might have had at one time a velocity of rotation greater than its present velocity, from causes similar to those which have been pointed out as possible in the case of the Earth itself. But if it would be difficult to account for a high ellipticity in Mars on the theory of its consolidation from a fluid state, it becomes impossible on the theory of its primitive solidity. When this erroneous theory was proposed, in order to account for the figure of the Earth, its advocates ascribed the observed ellipticity to the action of superficial abrasion combined with centrifugal force. On the assumptions of this theory I found, with the aid of known analytical methods, that if  $e$  be the ellipticity of the water surface of a planet,  $e_1$  that of its abraded solid surface,  $D$  the mean density of the planet,  $D_1$ <sup>8</sup> that of its solid surface, we would have

$$e = \frac{5q D + 6 (D_1 - 1)}{2 (5 D - 3)} e_1$$

where  $q$  represents the ratio of centrifugal force to gravity at the equator. Generally  $e$  would be greater than  $e_1$ ; its least value would be equal to  $e_1$ . In this case we find

$$e_1 = \frac{5q D}{2 (5D - 3) - 6 (D_1 - 1)} = \frac{5q}{10 - 6 \frac{D_1}{D}}$$

We have seen that the mean density of Mars and the time of its rotation are not very different from the mean density and time of rotation of the Earth. Hence, if its superficial density is also similar,  $e_1$  should be a fraction much smaller, instead of being greater than that required by the fluid theory. On the other hand, if we assume for  $e_1$  the high values assigned by some astronomers, we shall have

$$D_1 = \frac{5}{6} \left( 2 - \frac{q}{e_1} \right) D.$$

The value of  $q$  cannot differ much from its value on the Earth, consequently we should assign to the surface of Mars a density greater than its mean density, or, in other words, its density should decrease in going from its surface to the centre. This could not take place unless the materials comprising the

<sup>7</sup> See ATLANTIS, p. 177, and *Phil. Trans.*, vol. for 1851, part ii.

<sup>8</sup> *Proc. Royal Irish Academy*, vol. iv., p. 337.

planet possessed physical properties not merely different, but, so to speak, diametrically opposed to the properties of matter coming under our notice on the Earth.

Observers appear to be unanimous as to the fact that the surface of Mars presents both land and water, but they do not as yet seem to have come to settled conclusions as to the distribution of its seas and oceans. This is partly due to the influence of the clouds in its own atmosphere, and also in a slight degree to the circumstances under which the planet has been observed. Professor Phillips has compared his own drawings with the drawings and photographs of other observers, and has been thus led to conclude, that the planet has a larger proportion of land than water, and that the land is for the most part distributed in a belt, including the inter-tropical spaces and the north temperate zone, while broad seas encircle the north pole and a large portion of the south temperate zone. On the other hand, if, in accordance with the opinions of most observers, the light red spaces seen on Mars are land, the grayish blue, water, and the brilliant white, snow, it would follow from a drawing, taken by Mr. Nasmyth<sup>9</sup> with his reflector, that Mars possesses two circumpolar continents divided by a belt of equatorial ocean.<sup>10</sup>

Again, on referring to Mr. Lockyer's memoir,<sup>11</sup> at page 190 we find that the appended figures of Mars, in which he seems to have greatest confidence, are No. 14, 15, and 16, in all of which evidences of an equatorial ocean are more or less prominent, and on the whole his results do not seem to establish a predominance of equatorial over circumpolar land.

Under these circumstances, it becomes interesting to inquire whether the distribution of land and water on the surface of Mars might be influenced by the figure of the planet? If by the word figure we mean solely that of the surface assumed by its fluid covering, the problem is nugatory; but if we define it as the figure of the solid surface when stripped of its fluid coating, we shall arrive at conclusions bearing directly on the question at issue. The fluid surface is necessarily perpendicular to the resultant of the forces acting on it, which resultant, for shortness sake, may be called gravity, as in the case of the Earth, but, as also in the Earth, the surface of the solid over which the fluid is distributed, may not generally be perpendicular to gravity. I have shown, in the paper already cited,<sup>12</sup> that with

<sup>9</sup> *Quarterly Journal of Science*, vol. ii., page 377.

<sup>10</sup> *Memoirs of the Phil. and Lit. Soc.*, Manchester, vol. ii., third series.

<sup>11</sup> *Memoirs of the Royal Astronomical Society*, vol. xxxiii.

<sup>12</sup> Page 339.

the usually received value for the mean depth of the sea, a sphere of the same magnitude as our Earth, and rotating with its present velocity, would present at its surface two circumpolar continents, each possessing an area of a little more than one-sixth of the entire spherical surface, while the rest of the globe would be occupied by an equatorial ocean. It may be also similarly concluded that if our planet had the ellipticity of its solid crust equal to the values assigned to Mars by Arago and Main, the Earth would present two circumpolar oceans with a broad belt of equatorial land lying between them. These conclusions show that between the aspect of Mars and the results of measurement of its polar and equatorial diameters, a connection must subsist which is not yet satisfactorily verified.

Some well established features in the appearance of Mars may assist in explaining the discrepancies in the measured values of its diameters. In the neighbourhood of its poles, and especially of its south pole, there are well defined circular white patches of great brilliancy which are liable to variations in size, depending on the seasons of the planet precisely as if they were masses of snow. Some observers have concluded, that such patches may interfere with micrometrical measurement owing to irradiation. The snow patch near the south pole is also recognised as decidedly eccentric to the pole of rotation of the planet, a result perfectly in harmony with the analogous phenomena on our Earth, and probably explicable on similar grounds. As these eccentric patches probably vary in their eccentricity according to the seasons in Mars, they may in more than one way have influenced the results of measurement of the polar diameter, and have thus made its accurate estimation hitherto a matter of extreme difficulty. The truth of this opinion is confirmed by looking over the detailed account of the observations of one of the astronomers who has assigned a large value to the ellipticity.

M. Arago, in his memoir on Mars, accompanies the numerical results of his observations with remarks as to the definition of the planet's outline, and the words "ondulant" and "baveux" frequently recur. At page 274 he remarks: "*Les mesures du petit diamètre sont toujours beaucoup moins faciles que les autres*". This is what might be expected, and may well excuse those who cannot adopt the ellipticity assigned to Mars by this eminent astronomer. On the whole, it may be concluded that, although fresh observations are indispensable for a definite explanation of the appearance of Mars by known physical laws, the probability even now is very great that it conforms to them in nearly the same manner as the planet which we inhabit.



ART. IX.—*On Taylor's Theorem.*—By W. G. PENNY, M.A.

A NEW demonstration of this important theorem will be attempted in this paper, but, before giving it, it may be as well to state some objections that may be made to the methods already in use. Taylor's Theorem, then, in what has been called its complete form, and as given by the latest demonstration, is this :

$$f(x+h)=f(x)+hf'(x)+\frac{h^2}{2}f''(x)\dots+\frac{h^n}{n!}f^n(x+\theta h)\dots\quad (A)$$

where  $h$  may be any quantity whatever, and where  $\theta$ , which occurs in the function at the end, is some quantity less than unity. But what seems to be a fatal objection to this mode of exhibiting it is this, that most certainly the above equation is true only for *particular values* of  $h$  ; whereas the problem is, to obtain an expression which shall hold for all values. This may be shown as follows. Suppose that, instead of placing the remainder where we have done, we had continued the series for a few terms farther, and had then placed the remainder, the above equation would have become :

$$f(x+h)=f(x)+hf'(x)+\dots+\frac{h^n}{n!}f^n(x)+\frac{h^{n+1}}{n+1!}f^{n+1}(x)+\frac{h^{n+2}}{n+2!}f^{n+2}(x)+\dots+\frac{h^r}{r!}f(x+\theta_1h)$$

where  $\theta$  is some quantity of the same kind as  $\theta$  in the original equation, and the latter value of  $f(x+h)$  must of course be equal to the former, given in equation (A). Equating them, therefore, and rejecting terms common to both, we shall have :

$$\frac{h^n}{n!}f^n(x+\theta h)=\frac{h^n}{n!}f^n(x)+\frac{h^{n+1}}{n+1!}f^{n+1}(x)+\frac{h^{n+2}}{n+2!}f^{n+2}(x)\dots+\frac{h^r}{r!}f(x+\theta_1h)\dots\dots\dots (B)$$

Now, since by the supposition, any function  $F(x+h)$  may be expanded in powers of  $h$  with a remainder, whatever  $h$  be, so

also may the function  $f^n(x + \theta h)$  whatever  $\theta h$  be, whether it contains  $x$  or not, or else a function would not be expanded for all values. If, then, we were to perform the expansion, we should have :

$$\frac{h^n}{n!} f^n(x + \theta h) = \frac{h^n}{n!} \left\{ f^n(x) + \theta h f^{n+1}(x) + \frac{\theta^2 h^2}{2!} f^{n+2}(x) \dots + \frac{\theta^3 h^3}{3!} f^{n+3}(x + \theta^1 h) \right\} \dots \dots \dots (a)$$

that is to say, the latter series is equal to that given in the right-hand side of equation (B), namely, to the series,

$$\frac{h^n}{n!} f^n(x) + \frac{h^{n+1}}{n+1!} f^{n+1}(x) + \frac{h^{n+2}}{n+2!} f^{n+2}(x) \text{ etc. } \dots (b)$$

that is, rejecting the term common to both sides, and dividing

by the common multiplier  $\frac{h^{n+1}}{n!}$  which will be seen to per-

vade the whole, we have :

$$\begin{aligned} \theta f^{n+1}(x) + \frac{\theta^2 h}{2} f^{n+2}(x) + \text{etc.} \\ = \frac{1}{n+1} f^{n+1}(x) + \frac{h}{n+2} f^{n+2}(x) + \text{etc.} \end{aligned}$$

Now, granting that some real value of  $\theta$  less than 1 exists, which will satisfy this equation, what will be the result? Simply this, that  $h$  will be restricted to some particular value. For it is well known that, to be true for *all* values of  $h$ , the two series in the last equation must be *identical*.

Now, it is obvious that no value whatever can be given to  $\theta$  which shall identify them throughout. The only value of  $\theta$

which will make the first terms identical is  $\theta = \frac{1}{n+1}$ ; but

then this value, when put for  $\theta$  in the second term of the series, at the left side, will not make it identical with the corresponding term of the series on the other side; that is, no value of

$\theta$  will make them identical throughout, and thus they can only be equal for one or more particular values of  $h$ . In other words, equation (A) can only be true for particular values of  $h$ , since no value of  $\theta$  will make that part of it which would arise from the development of  $f^{n+1}(a + \theta h)$  identical with what would have arisen from continuing the terms  $f^n(x)$  etc., by developing the original function a little further.

It cannot, therefore, be maintained that the remainder may be exhibited in the form of a single function, without either at the same time maintaining that two series may be true for all values of  $h$ , without having coefficients of like powers equal; or without asserting the contradiction, that a function may be expanded in powers of  $h$ , whatever  $h$  be, and yet that for some values it cannot.

2. Let us now examine the process by which equation (A) is formed. It may be given somewhat as follows. The expression :

$$f(a+x) - f(a) - xf'(a) - \frac{x^2}{2} f''(a) \dots - \frac{x^n}{n!} f^n(a) - \frac{x^{n+1} R}{n+1}$$

(where  $R$  is assumed to be

$$\frac{n+1}{h^{n+1}} \left\{ f(a+h) - f(a) - hf'(a) - \frac{h^2}{2} f''(a) \dots - \frac{h^n}{n!} f^n(a) \right\}$$

and where  $x$  may have any value), may, by assigning a suitable value to  $x$ , be made equal to any quantity,  $P$ , which we please, provided only that the equation so resulting contains a possible value of  $x$  which will satisfy it. Let us therefore suppose it equal to 0, and see if there is any possible value of  $x$  which will satisfy the equation.

Now, first, it is evident that the expression vanishes when  $x = 0$ , and also when  $x = h$ ; that is,  $x = 0$  and  $x = h$  are

roots of  $f(a+x) - f(a) - \frac{x^{n+1}}{n+1} R = 0$ , and hence by the

theory of equations the first derived equation will have a real root lying between 0 and  $h$ ; i. e. less than  $h$ , call it  $h_1$ . Now, from the first derived equation, it is

$$f'(a+x) - f'(a) - xf''(a) \dots - \frac{x^n}{n!} = 0$$



This also contains one root,  $x=0$ , and we have seen that it has another,  $h_1$ , therefore, in like manner, the next derived equation will contain a root lying between 0 and  $h_1$ ; call it  $h_2$ . Continuing this process, we shall at length arrive at the  $(n+1)^{th}$  derived equation  $f^{n+1}(a+x)-R=0$ , which, in like manner, will have a root lying between 0 and some other quantity less than  $h$ , call it  $\theta h$ ,  $\theta$  being some quantity less than 1; substitute, therefore,  $\theta h$  for  $x$  in the last derived equation, and we have  $f^{n+1}(a+\theta h)=R$ , or, by the assumed value of  $R$ , we have

$$f(a+h)=f(a)+f'(a)h+\frac{h^2}{2}f''(a)+\dots+\frac{h^n}{n!}f^n(a)+$$

$$\frac{h^{n+1}}{(n+1)!}f^{n+1}(a+\theta h)$$

Now, whence is this value of  $x$  which will satisfy

$$f^{n+1}(a+x)-R=0$$

derived? Certainly from no other source than from the equation itself, and for this plain reason, that there is no other equation which is simultaneously satisfied by the same quantity to determine it. But when we determine a value of  $x$  which will satisfy a proposed equation *from the equation itself*, and then substitute it for  $x$ , it is well known that the only result of doing so is to produce an identity, without establishing any relation whatever between the coefficients or other quantities which enter into the equation. To take a simple instance:  $x^3 + px^2 + qx + r = 0$  has two real roots,  $a$  and  $b$  suppose; therefore its first derived equation, or  $3x^2 + 2px + q = 0$  has a real root lying between them, let it be  $\theta b$ , where  $\theta$  is less than 1, then, substituting this for  $x$ , we have  $3\theta^2 b^2 + 2p\theta b + q = 0$ ; and if we left it in this indeterminate form, we might fancy that some relation was established between  $p$  and  $q$ ; but, if we substitute for  $\theta b$  its only admissible values,

namely,  $\frac{-p + \sqrt{p^2 - 3q}}{3}$  or  $\frac{-p - \sqrt{p^2 - 3q}}{3}$  the fallacy at

once becomes evident; for by doing so we get the result

$$2p^2 - \frac{2}{3}p^2 + \frac{2}{3}\sqrt{p^2 - 3q} - \frac{2}{3}p\sqrt{p^2 - 3q} + q - q = 0$$

which is an identity, and shows nothing as to any relation between  $q$  and  $p$ . In fact, no such relation can be established except by finding some value of  $x$  derived from some source *independent of the equation itself*, and then substituting.

The case just given is exactly what has been done in the proof of Taylor's Theorem. We have taken a quantity,  $\theta h$ , which quantity can be determined from no other source than the equation itself, and have substituted it for  $x$ , and have supposed that we have thereby established a relation between  $R$  and other quantities; whereas, in truth, we have nothing whatever to put for  $x$ , except some value derived from the equation itself, which value will cause the functional sign  $f^{n+1}$  to disappear, and will simply reduce the whole to the identity  $R=R$ .

Suppose, for example, that our  $(n+1)^{th}$  derived equation above, were  $\sin(a+x)-R=0$ , we have no value to put for  $x$  but what is got from the equation itself, viz.,  $\sin^{-1} R - a$ , the which, if we put it for  $x$ , gives  $\sin \sin^{-1} R - R = 0$  or  $R=R$ . And so, for any form whatever of the function, we can put no value for  $x$  but one which will cause the function to disappear, as above, and will merely leave  $R=R$ , a result which leaves us where we were at the outset. To find any relation, then, between  $R$  and  $a$  or any other quantities in the function, we need a value of  $x$  derived from *other* equation, independent of the one obtained already; but this cannot be found, and would be of no real use if it could. For though it would certainly establish a relation between  $R$  and  $a$  and some quantity independent of them, yet, since  $R$  contains  $h$ , this would be only the same thing as establishing a particular relation between  $h$  and  $a$ , which is of no use. Indeed, if anything else were put for  $x$  than the value which makes the function disappear, it would lead to just the result described in No. 1, and probably it has been tacitly supposed by the author of this demonstration that there is some such value, which, however, there certainly is not.

The method, then, just examined fails entirely to show that  $f^{n+1}(a+\theta h)$  forms any part of the development of  $f(a+h)$ , and equally fails to show that any one term whatever of the series which  $R$  represents forms part of the development. Any series whatever, with any remainder, might hold for particular values of  $h$ , and would do quite as well as the one proposed. In fact, it shows nothing more than that the series is equal to itself, and thus not only is the reasoning inconclusive, but the test applied in No. 1 shows that, except for particular values of  $h$ , the conclusion is also incorrect.

## 3. Remarks on other demonstrations.

As to those which make use of the function  $f^n(x+\theta h)$  no more need be said; but, with regard to that which is due to Dr. Taylor himself, namely, the use of an infinite series with indeterminate coefficients, Mr. Todhunter remarks: "There are numerous objections to the method . . . and especially the use of an infinite series, without ascertaining that it is convergent, is inadmissible".

This objection is undeniably of great force, but in reality it would seem to apply rather to the thing to be proved than to the method of proving it; for, if it be true that a finite function can always be represented by an infinite series, there can be no objection to the representing such a series by means of indeterminate coefficients, to be determined afterwards as best we may. But if, on the other hand, it be sometimes untrue that it can be so represented, and we were nevertheless to assume it equal to a series  $A + Bh + Ch^2 + \text{etc.}$ , we should have made an assumption which might be false; and, though a false assumption undoubtedly must lead to an absurd result, yet it may be a result whose absurdity is by no means evident on the face of it; so that, in using such a series, we ought to know beforehand that such is the true form, or to have some means of testing the truth of the final result, such as was applied in No. 1. So far, however, are we from being certain that the value of a finite function can always be given by an infinite series, that, on the other hand, we are quite certain that some times it is not so; i.e., when the series is divergent. By a converging series we mean one which ultimately tends to some finite limit; by a divergent series, one which does *not*; so that to say that a diverging series may be the representative of a finite function seems to imply a contradiction of terms.

Suppose, for instance, we were to expand the series  $(1-x)^{-1}$  by the binomial theorem, we shall have  $(1-x)^{-1} = 1+x+x^2+x^3+\text{etc.}$ , *ad inf.* That is, the geometrical series  $1+x$

$+x^2$  etc., is always equal to  $\frac{1}{1-x}$ ; but this, it is well known, is

only true when  $x$  is less than 1; the same is the case also for

$(1+x)^{-1}$ . When it is greater than 1, the quantity  $\frac{1}{1-x}$

becomes negative, and we have an infinite series of positive quantities equal to a negative quantity. The origin of this



fallacy is evident if we expand the same quantity by the simpler method of actual division. Thus,

$$\frac{1}{1-x} = 1 + \frac{x}{1-x} = 1 + x + \frac{x^2}{1-x} = 1 + x + x^2 \dots + x^{n-1} + \frac{x^n}{1-x}.$$

The fact is that, however far we may carry the operation, a *remainder* must always be added, and one which for a divergent series increases in importance at every step. There must always be *something else besides the series itself*, something which can only be neglected when we have ascertained that it becomes smaller and smaller, and not larger and larger, at every step. No expansion is true *universally* without the addition of such a remainder: it can only be true for all values of the quantity contained in it, within certain limits, but not beyond them. This remainder will necessarily be an unknown quantity in general; but, whatever it be, it must be such that *when it is itself developed*, it shall give a series which shall be identical with that which would be obtained by the further development of the original function.

The case, then, is this: since we know, previously to the use of the differential calculus, that a function can sometimes be represented by an infinite series, and sometimes not, we might put the proposition to be proved somewhat thus: "When  $f(x+h)$  admits of being represented by an infinite series, its value is", etc. We might proceed with our proof thus: *when*  $f(x+h)$  admits of being represented by an infinite series, let that series be,  $A+Bh+\text{etc.}$

And perhaps this method of treating it may be as satisfactory as any other; but, anyhow, it may not be out of place to propose one or two other methods both of stating and proving our proposition. But before doing so it may be remarked that the instance given above seems to show that Taylor's Theorem, as first stated, requires some limitation, and that it is defective in this:<sup>1</sup> that nowhere in the demonstration does it take any ac-

<sup>1</sup> It may be worthy of remark that the Binomial Theorem also requires a similar limitation, and for a similar reason. For instance,  $(a+b)^m$ , when  $m$  is a negative integer, can only be expanded in a series of ascending positive powers of the *less* of the two quantities  $a$  and  $b$ . The expansion of  $(1 \pm x)^{-1}$  is a sufficient illustration of this. Compare the result given by the Binomial Theorem with that obtained by division. The former would give for the value of it the geometric series  $1 \pm x + x^2$ , etc., *ad inf.* But this series is *not* equal

to  $\frac{1}{(1 \mp x)}$  when  $x$  is greater than 1.

count of the *remainder* which arises at every step in the process. The limitaion, then, which I would propose is as follows :

$$f(x+h) = f(x) + h.f'(x) + \frac{h^2}{2} f''(x) + \frac{h^3}{3!} f'''(x) + \text{etc., ad infinitum.}$$

whenever the function is such that  $f(x)$ , and its derived functions, always remain finite. This is what I shall endeavour to prove, and in doing so shall endeavour to keep as much as possible to first principles, inasmuch as a demonstration which connects the result with the first principles of the science by the fewest intermediate links in the shape of other propositions, etc., is, if not always the shortest, yet, generally, the simplest and safest.

*Principles which will be appealed to in what follows.*

4. In the demonstration about to be given, I shall have to appeal to the following principles :

(1.) That in any equation such as  $y-a-b=0$ , which is to hold for *all* values of  $a$  and  $b$ , the only quantity which can be substituted for  $y$  is a quantity which will render the above an *identity*, that is to say, an expression in which *each* term,  $a$  and  $b$ , is identically destroyed by a like quantity : in other words, we can put for  $y$  nothing else than  $a+b$ , and this holds whether  $y$  is a simple term or a compound, such as  $y+x$ ; if it were the latter, the only thing we could put for  $y+x$  would be  $a+b$ . This is the common meaning of a *root* of an equation. If there were any other value of  $y$  derived from some other simultaneous equation, such as  $c$ , the substitution of this would manifestly imply some special relation between  $a$  and  $b$ , viz.,  $a=b+c$ .

(2.) That  $f(x+a)$  means what  $f(x)$  becomes when  $x+a$  is written for  $x$ ; and, in like manner,  $f(x+2a)$  is what  $f(x+a)$  becomes when  $2a$  is written for  $a$ , and that any equivalent expression that is put for  $f(x+2a)$  will be the same as the corresponding value of  $f(x+a)$ , except that whenever  $a$  occurs in the one,  $2a$  will occur in the other : e. g.,

$$\begin{aligned}\sin(x+a) &= \sin x \cos a + \cos x \sin a, \text{ and} \\ \sin(x+2a) &= \sin x \cos 2a + \cos x \sin 2a\end{aligned}$$

which is the same as the former, only with  $2a$  put for  $a$  in the equivalent or developed expression.

(3.) If  $y$  be any quantity whatever, containing another quantity  $h$ , and if  $a$  be the value of  $y$  when  $h$  becomes 0, the general value of  $y$  for any other value of  $h$  may be represented under the form  $y=a+hR$ , provided only that  $a$  be not infinite, and  $hR$  is some quantity which vanishes when  $h$  does.

For, as long as  $a$  is finite, we may always add to it (or subtract, if necessary) some quantity  $r$  which shall make the result equal to anything we please, and therefore to  $y$ , whatever be the value of  $y$ ; and consequently we shall have  $y=a+r$ , which holds for every value of  $y$ , and therefore for every value of  $h$  which is contained in it. Also, since  $y$  contains  $h$ , and  $a$  does not, it is plain that  $r$  must contain  $h$ ; and therefore since whatever be the magnitude of  $r$ , some other quantity  $hR$ , which shall be such as to vanish when  $h$  does, may be always put equal to it. Substitute it therefore for  $r$ , and we have  $y=a+hR$  for all values of  $h$ , and whatever be the form of  $y$ .

By means of these principles the development of any function  $f(x+h)$  may be effected, and the process to be followed is exactly analogous to that in the development of  $(1+h)^{-1}$  by actual division. Thus the first step gives us

$$(1+h)^{-1}=1-\frac{h}{1+h},$$

that is, a term independent of  $h$ , and a remainder involving  $h$ . The next step will replace this remainder by a new term and a new remainder—and so on as long as we like.

### 5. Demonstration of Taylor's Theorem.

To show that

$$f(x+h)=f(x)+hf'(x)+\frac{h^2}{2}f''(x)+\frac{h^3}{3!}f'''(x)\dots + \text{etc., ad infinitum},$$

provided that  $f(x)$ ,  $f'(x)$ , etc., are always finite.

In the first place,  $f(x+h)$  becomes  $f(x)$  when  $h$  is 0, and hence by principle (3) we shall have when  $h$  is not 0, and  $f(x)$  is finite,

$$f(x+h)=f(x)+hR_1 \quad . \quad . \quad . \quad (1).$$

Now the only equations besides this which we have which in any way connect  $f(x+h)$  with other quantities are those



which connect it with its several differential coefficients. These therefore we must make use of. The first of them is

$$\frac{f(x+h)-f(x)}{h=0} = f'(x) \quad . \quad . \quad . \quad (a)$$

which means that  $f'(x)$  is what  $\frac{f(x+h)-f(x)}{h}$

becomes when  $x=0$ ; therefore by principle (3) when  $h$  is not 0 we shall have

$$\begin{aligned} \frac{f(x+h)-f(x)}{h} &= f'(x) + hR_2 \text{ or} \\ f(x+h) &= f(x) + hf'(x) + h_2R_2 \quad . \quad . \quad . \quad (2). \end{aligned}$$

This is equivalent to replacing  $hR_2$  in equation (1) by

$$hf'(x) + h^2R_2.$$

Let us now form the equation for the second differential coefficient,  $f''(x)$ , which is done by operating upon

$$\frac{f(x+h)-f(x)}{h=0}$$

in the same way that we did upon  $f(x)$  to produce  $f'(x)$ . Thus

$$\frac{f(x+2h)-f(x+h)-\{f(x+h)-f(x)\}}{h^2=0} = f''(x)$$

that is,  $f''(x)$  is what  $\frac{f(x+2h)-2f(x+h)+f(x)}{h^2}$

becomes when  $h=0$ , hence by principle (3) the general value of this quantity when  $h$  is not 0 will be  $f''(x) + hR'''$ , so that we have

$$f(x+2h)-2f(x+h)+f(x) = h^2f''(x) + h^3R''' \quad . \quad . \quad (b).$$

Now, by principle (1), the value to be put for

$$f(x+2h)-2f(x+h)$$

must be such as to render this *identically* true; that is, it must contain one term which shall be identical with  $h^2 f''(x)$  on the right side, and another which shall be equal to  $h^3 R'''$  (It will suffice to consider the former). And this will require by principle (2), that *each* of the quantities  $f(x+2h)$  and  $f(x+h)$  shall contain a term multiplied by  $h^2 f''(x)$ . If, then,  $mh^2 f''(x)$  be the term in  $f(x+h)$ , the corresponding term in  $f(x+2h)$  will, by the same principle, be  $4mh^2 f''(x)$ , and thus the left side of equation (b) will contain the terms

$$4mh^2 f''(x) - 2mh^2 f''(x),$$

which becomes identical with  $h^2 f''(x)$  on the right side, when  $4m - 2m = 1$ , or  $m = \frac{1}{2}$ . Also, both  $f(x+h)$  and  $f(x+2h)$  must contain, besides the new term just introduced, a remainder multiplied by  $h^3$ , to be equal to the other term on the right side. Let  $h^3 R_3$  be the remainder in  $f(x+h)$ . Then we have, replacing

$$h^2 R_2 \text{ in equation (2) by } \frac{h^2}{2} f''(x) + h^3 R_3$$

$$f(x+h) = f(x) + hf'(x) + \frac{h^2}{2} f''(x) + h^3 R_3 \quad (3)$$

In like manner, the equation for the third differential coefficient will give

$$f(x+3h) - 3f(x+2h) + 3f(x+h) - f(x) = h^3 f'''(x) + h^4 R^{iv}$$

In which, as before,  $f(x+h)$  must contain a term,  $mh^3 f'''(x)$ , and therefore also  $f(x+2h)$  the term  $m2^3 h^3 f'''(x)$  and  $f(x+3h)$  the term  $m3^3 h^3 f'''(x)$ , in order that there may be a term  $h^3 f'''(x)$  on the left side equal to  $h^3 f'''(x)$  on the right; and the equation for determining  $m$  will be

$$m(3^3 - 3.2^3 + 3) = 1 \text{ or } 3.2.m = 1 \text{ or } m = \frac{1}{3!}.$$

and there will be a remainder as before. In like manner, I find the next additional term to be  $\frac{h^4}{4!} f^{iv}(x)$ , and the next

again  $\frac{h^5}{5!} f^v(x)$ ; and we might proceed to any number of

terms. The law of formation is sufficiently obvious (see appendix). Collecting results, therefore, we have

$$f(x+h) = f(x) + hf'(x) + \frac{h^2}{2!}f''(x) \dots + \frac{h^n}{n!}f^n(x) + h^{n+1}R_{n+1}.$$

Now, when the remainder keeps diminishing as we go on, it will finally vanish; but, as we have seen in the expansion of  $(1+h)^{-1}$  that it does not always do so, but may go on increasing, we must find out, as best we may, in what cases it diminishes and in what it increases. This, however, can only

be done by examining the terms preceding it: thus,  $\frac{h^n}{n!}$  may

always be made as small as we please by making  $n$  sufficiently large; and, therefore, as long as  $f^n(x)$  is finite, the whole

term  $\frac{h^n}{n!}f^n(x)$  may be made as small as we please, and

*a fortiori* all preceding terms in which  $n$  is still larger, provided that all the differential coefficients are finite; and, therefore, when this is the case, by making  $n$  infinite, we cause the remainder to vanish, and our equation becomes

$$f(x+h) = f(x) + hf'(x) + \frac{h^2}{2}f''(x) + \frac{h^3}{3!}f'''(x) + \text{etc.},$$

*ad infinitum.*

when  $f(x)$ ,  $f'(x)$ , etc., are always finite. Q. E. D.

## 6. A variation of the above method.

It will here be supposed, as is shown in all treatises on the differential calculus, that when  $f(x+h)$  is differentiated, the result will be the same, whether it is differential with respect to  $x$  or with respect to  $h$ .

The first term, then, of the expansion of  $f(x+h)$  will be what it becomes when  $h$  is 0, i. e.,  $f(x)$ .

Instead now of forming  $f''(x)f'''(x)$ , etc., by the introduction of the functions  $f(x+2h)$ ,  $f(x+3h)$ , etc., we might have formed them by the introduction of  $f'(x+h)$ ,  $f''(x+h)$ , etc., and so we should have had



$$\frac{f'(x+h)-f'(x)}{h=0}=f''(x)$$

$$\frac{f^n(x+h)-f^n(x)}{h=0}f^{n+1}(x)$$

Let us consider any one of these—the last, for instance. It

means that  $f^{n+1}(x)$  is what  $\frac{f^n(x+h)-f^n(x)}{h}$  becomes when  $h$

becomes 0. Therefore by principle (3), the value of

$$\frac{f^n(x+h)-f^n(x)}{h}$$

when  $h$  is not 0, will be  $f^{n+1}(x)+hR$  where  $R$  contains a positive power of  $h$  as a multiplier; so that

$$f^n(x+h)=f^n(x)+hf^{n+1}(x)+hR.$$

This is the equation obtained by differentiating  $f(x+h)$   $n$  times with respect to  $x$ , but the result obtained by differentiating with respect to  $h$  must be identical with this, which it can only be if  $f(x+h)$  contains the terms

$$\frac{h^n}{n!}f^n(x)+\frac{h^{n+1}}{n+1!}f^{n+1}(x)$$

for no other terms but these will produce the two first terms on the right-hand side of the last equation, and this holds for all values of  $n$ , such as 1, 2, etc., so that we shall have

$$f(x+h)=f(x)+hf'(x)+\frac{h^2}{2!}f''(x)\dots+\frac{h^n}{n!}f^n(x)+\frac{h^{n+1}}{n+1!}R.$$

as before.

### *On the Limits of Taylor's Theorem.*

The remainder given above is an undetermined quantity. And if we wish to exhibit it in any determined form, it must be borne in mind that no quantity can be put for it but such a one as would by its development produce the same continuation of the series as would arise from the further develop-

ment of the original function itself. It is for this reason that it cannot be given in the shape of a single function such as  $f^n(x+h)$ . It can only be given in the form of a *series* of such functions. Thus, the remainder after  $n-1$  terms might be replaced by a series of functions of which the first two would be

$$\frac{h^n}{n!} f^n\left(x + \frac{1}{n+1}h\right) + \frac{1}{2} \frac{n}{n+1} \frac{h^{n+2}}{n+2!} f^{n+2}\left(x + \frac{5n+7}{3(n+1)(n+3)}h\right)$$

the development of which will produce the required terms to 4 places, and for every 2 more places an additional term would be required. We might represent the sum of such a series by

$$\Sigma \left( \frac{h^n}{n!} f^n\left(x + \frac{h}{n+1}\right) \right)$$

at least such a series would always represent *one* property of the remainder, namely, that its development produces the same continuation of the series as would arise from the further development of the original function; but it is not clear that much knowledge would be gained by the introduction of such terms. In fact it is not of much advantage to know the actual value of the remainder, for when the remainder is of any importance, the expansion is of no use; and when the expansion is useful, the remainder will be of no importance. All that is needful to know about it is whether it is a continually increasing or decreasing quantity, and this, by making  $n$  sufficiently large, may always be done by examining the previous terms.

When after a certain number of terms it becomes a continually decreasing quantity, it ultimately vanishes, and it always begins to do so in time (though it may not in the earlier terms of the series), whenever the quantities  $f^n(x)$ , etc., are always finite. As an example,

$$\sin(x+h) = \sin x \left( 1 - \frac{h^2}{2!} + \frac{h^4}{4!} + \text{etc.} \right) + \cos x \left( h - \frac{h^3}{3!} + \text{etc.} \right)$$

here the quantities  $f(x)$ ,  $f'(x)$ , etc., are always finite; and the series containing  $h$  are such that by making  $n$  large enough,

$\frac{h^{n+2}}{n+2!}$  may always be made much less than  $\frac{h^n}{n!}$ , that is, they be-

come convergent, and the remainder vanishes when  $n$  becomes infinite.

Take another,

$$(x-h)^{-1} = x^{-1} \left( 1 + \frac{h}{x} + \frac{h^2}{x^2} \dots + R \right)$$

Here the functions  $f^n(x)$ , etc., admit of infinite increase even if  $x$  is large, and  $(x+h)^{-1}$  does not admit of being expressed by an infinite series without a remainder unless  $h$  is less than  $x$ , or we should have a series of opposite quantities equal to a negative one.  $R$ , therefore, must have a negative value, and a continually increasing one, and from this it would seem that the way in which I have stated the general theorem is rather an understatement than an overstatement; for it may happen that even when the functions  $f(x)$  admit of infinite increase, the true

value of the  $f(x+h)$  may sometimes be represented by an infinite series when  $\frac{h}{x}$  is a small fraction.

It would also appear from the last example, as well as from such examples as the expansion of  $\log(x+h)$ , that when they cannot be truly represented by an infinite series of one of the quantities, they sometimes may by the other, viz., the smaller of the two. But this is not universally true. For instance,

$$\tan(x+h) = \tan x + \sec^2 x \cdot h + \tan x \cdot \sec^2 x \cdot h^2 + \text{etc.}$$

Suppose  $x$  to lie between  $45^\circ$  and  $90^\circ$ . Then  $\tan x \sec^2 x$ , etc., are all positive and greater than 1, and are continuously increasing quantities. Suppose at the same time that  $h$  lies between the same limits, then  $x+h$  lies between  $90^\circ$  and  $180^\circ$ , and  $\tan x-h$  is negative, that is, we have a negative quantity equal to an infinite series of positive ones.

Taylor's theorem then, as originally stated, fails whenever  $f'(x)$ , etc., admit of infinite increase, unless the ratio of  $h$  to  $x$  is sufficiently small to make the series convergent nevertheless. It requires, therefore, some such limitation as that which has been proposed, or to be stated somewhat as follows: that it may always be expanded as far as we please in ascending powers of  $h$ , but with an undetermined remainder, which however shall contain no powers of  $h$  identical with those found in the terms preceding it. Stated in either of these forms, it will



always be true. It is only when a theorem states too much that there are any cases in which it fails.

### Appendix.

Connected with this, there is a rather remarkable theorem, or property of numbers. Thus:

Let  $a, a-1, a-2 \dots a-n$  be any  $n+1$  consecutive numbers; then

$$a^n - n(a-1)^n + \frac{n(n-1)}{2!}(a-2)^n + \text{etc.}, \text{ to } n+1 \text{ terms} = 1.2.3. \dots n.$$

that is, it is equal to the continued product of the numbers  $1, 2, \dots n$ . This may be shown as follows:

Let  $a_1, a_2, a_3$  etc., be any series arranged in order of magnitude,  $a_1$  being the greatest. Then, forming the successive differences of this series, we shall have (see Young's *Algebra*, p. 242), and calling them  $\Delta_1$ , etc.

$$\Delta_1 = a_1 - a_2 \quad \Delta_2 = a_1 - 2a_2 + a_3 \quad \Delta_3 = a_1 - 3a_2 + 3a_3 - a_4, \text{ etc.}$$

$$\Delta_n = a_1 - na_2 + \frac{n(n-1)}{2}a_3 - \frac{n(n-1)(n-2)}{3!}a_4 + \text{etc.}$$

Comparing this last with the expression above, we shall find that the latter is the  $n^{\text{th}}$  difference of the series  $a_1, a-1, a-2$ , etc.

But, by forming the various differences in succession, we shall have

$$\Delta_1 a^n = a^n - (a-1)^n = na^{n-1} - \frac{n(n-1)}{2}a^{n-2} + \text{etc.}$$

in which the first term is  $na^{n-1}$  and the next is multiplied by  $n-1$ , and so also we shall find for the second difference

$$\Delta_2 a^n = n(n-1)a^{n-2} - n(n-1)(n-2)a^{n-3} + \text{etc.}$$

where the first term is  $n(n-1)a^{n-2}$  and the next is multiplied by  $n-2$ .

Forming the other differences in the same way, we shall find that at each step the index of  $a$  decreases by 1, till at length in the  $n^{\text{th}}$  difference it will be  $n-n$ , or 0, and  $a^{n-n} = 1$ . Also a new factor is introduced at each step, so that in the  $n^{\text{th}}$  difference there will be  $n$  factors:  $n(n-1)(n-2) \dots (n-n+1)$ , and

the next term will be multiplied by  $n-n$  or 0, so that the  $n^{\text{th}}$  difference reduces itself to its first term  $n, n-1, \dots, 3, 2, 1$ , but the  $n^{\text{th}}$  difference is also

$$a^n - n(a-1)^n + \frac{n(n-1)}{2}(a-2)^n + \text{etc.}$$

therefore, equating these, we have

$$a^n - n(a-1)^n + \frac{n(n-1)}{2}(a-2)^n + \text{etc.} = 1, 2, 3, \dots, n$$

Cor. if  $a=n$  the above reduces itself to

$$n^n - n(n-1)^n + \text{etc.} = 1, 2, 3, \dots, n$$

This verifies the results obtained above for  $m$ , the coefficient of any one of the quantities  $f^n(x)$ , etc. for the general equation for finding it for  $f^n(x)$  is  $n^n - n(n-1)^n + \text{etc. } m=1$ .













